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THE ORIGINS OF ARCHITECTURE

HELLENIC ARCHITECTURE

THE TEMPLE OF HEPHAISTOS, OR SO-CALLED THESEION, ATHENS

(Hellenic Society)

HELLENIC ARCHITECTURE

ITS GENESIS AND GROWTH

BY

EDWARD BELL

M.A., F.S.A.

WITH ILLUSTRATIONS

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PREFACE

TO add one more to the numerous books which deal with classical architecture may seem an uncalled for undertaking for which an apology is needed. Apart from the professional text books which analyse the "orders" for the use of students in architecture, there is the monumental work of Messrs. Perrot and Chipiez, and more recent handbooks such as Messrs. Anderson and Spier's "Architecture of Greece and Rome," Professor F. M. Simpson's "History of Architectural Development," Dr. Russell Sturgis' "History of Architecture," or Mr. Statham's "Critical History of Architecture," which may be assumed to discuss the classical phases of the art in sufficient detail to satisfy the requirements either of the professional student or of the general reader who takes an interest in the subject. For those whose researches are not limited to English treatises the well-known "Histoire de l'Architecture," of M. Choisy, and the volume dealing with Greek Architectural styles, for which Professor Durm is responsible, in the German "Handbuch der Architektur" treat in considerable detail the early and immature phases of Hellenic architecture.

But though in all these works the sources of the style are partially recognized, the process of its formation

is treated somewhat tentatively or summarily,[1] and little attempt is made to show its aesthetic evolution in historical and logical sequence.

To some extent this has been inevitable, because it is only within recent years that archaeological research has disclosed the remains of earlier phases of civilization in which the roots of classical culture were embedded; and the fact that much of this information is still to be sought in reports of private societies, or in special volumes which are not yet published in this country, will perhaps be accepted as an apology for this attempt to epitomize such recent information, and excuse the hope that this small volume may help to fill a *lacuna* in the history of early classic art.

It will be evident to the expert either in architecture or archaeology that I do not pretend to do more. The technical side of architecture has been authoritatively dealt with in some of the above-mentioned works; and archaeology still presents many doubtful questions, both racial and chronological, in which I have not ventured to take a definite part except in so far as any treatment of the subject necessitates. In such cases I have adopted the line of least resistance, and on all occasions which seem to call for it I have referred to authorities which support, or possibly qualify, statements made in the text.

In a former volume on the architecture of Ancient

[1] Thus Messrs. Perrot and Chipiez say, "Il est possible que l'exemple de l'Égypte ait contribué à le pousser dans une voie nouvelle," vol. vii, p. 371.

Egypt, I attempted to show that a style of building, based on the use of stone, had in that country already attained considerable grandeur, and might have been still further developed if it had not been interrupted by the intrusion of comparatively barbaric ideals due to the domination of more distinctly African races. That the earlier and purer Egyptian art had some influence on that of Crete is not disputed; and it would have been more in accordance with my general plan to have examined the architectural remains of the Aegean area before dealing with the more developed art of Greece. But the time is hardly ripe for this, and whilst the results of research in the islands and on the coasts of the Aegean still await co-ordination and connected treatment, I have found it necessary to condense into two chapters the special features which characterize Minoan and Mycenaean building and give them a place in the main line of architectural history.

The ultimate influence of Egypt on Greece was a complex one, being partly direct and partly transmitted, and I have made an attempt to analyse this influence and show in what manner it affected the general tradition. In this process I have relied on numerous reports and published works, which are specified in footnotes; but I am more particularly indebted to the volumes issued by the British School at Athens in which Sir Arthur Evans' reports of his excavations at Knossos were published yearly as the work progressed. To him and to Messrs. Macmillan and the Council of the Hellenic

Society I must record my gratitude for permission to use some of the illustrations which appeared in their annual reports, as well as some in the Journal of Hellenic Studies. I am also indebted to the Director of the British Museum for permission to copy a few illustrations from the official publications; and to the Council of the Egypt Exploration Fund and to the Society of Antiquaries for similar obligations; also to Messrs. Macmillan for the use of a woodcut in "The Mycenean Age," by Messrs. Tsountas and Manatt; to the Macmillan Company of New York for permission to copy five of the excellent illustrations in Dr. Russell Sturgis' work, to Messrs. Longmans for the use of two in Professor Simpson's History, to Mr. B. T. Batsford for a number from the volumes by Messrs. Anderson and Spiers and Mr. Statham, to Mr. Fisher Unwin for free leave to use those in Mosso's "The Palaces of Crete," and to Mr. John Murray for two from Schliemann's "Mycenae." I must also acknowledge my indebtedness to the works of Dr. Lübke, Prof. Durm, and Dr. Noack for a number of illustrations of details. The use of the valuable library of the Hellenic Society has enabled me to include several old views of well known monuments, which have the advantage of showing them in a more complete state than they are at the present day. Finally I have to thank Mr. John Williamson for sundry drawings, including the reproduction of a few pencil sketches mostly made on the spot a few months before the outbreak of war.

E. B.

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MAP OF HELLAS AND THE WESTERN MEDITERRANEAN *End*

ABBREVIATIONS USED IN THE NOTES

AEG. ARCH. Aegean Archaeology. By H. R. Hall, M.A., F.S.A. 1915.

AND. & SP. The Architecture of Greece and Rome. By W. J. Anderson & R. Phené Spiers. 1907.

ARC. OF A. EGYPT. The Architecture of Ancient Egypt. By Edward Bell. 1915.

ATH. MITTH. Mitteilungen des Kaiserl. Deutschen Archäologischen Instituts.

B.C.H. Bulletin de Correspondance Hellénique.

B.M. British Museum.

B.S.A. British School at Athens.

BAUDENKM. V. OLYMPIA. Die Baudenkmäler von Olympia, bearbeitet von. F. Adler, R. Boormann W. Dörpfeld, etc. 1897.

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HELLENIC ARCHITECTURE

CHAPTER I

PREHISTORIC GREECE

WHEN about ten or eleven centuries before our era a certain northern horde descended the Balkan peninsula and occupied a large portion of the regions now known as Greece, they found there a civilization which was as strange to them as, in much later days, the Roman civilization was to the Teutonic and Scandinavian invaders of our own islands. This civilization they seem, in like manner, to have begun by destroying or at least disorganizing, and for several centuries afterwards the history of the land, so far as visible evidence is concerned, remains involved in doubt and obscurity.[1]

[1] TENTATIVE CHRONOLOGY (see p. 10).

MINOAN	B.C.	EGYPTIAN
Early M. (1, 2, 3)	3000-2200	Dynasties III-X
Middle M. (1, 2, 3)	2200-1600	„ XI-XII
Late M. (1, 2)	1600-1400	„ XIII-XVIII
Late M. (3) } Mycenaean }	1400-1200	„ XVIII-XIX
Cretan catastrophe	1450	
Achaeans in Peloponnesus	1300	
Fall of Troy	1180	
Dorians invade Peloponnesus } Greeks migrating to Asia }	1100-1000	
Homeric epics written	900-800	

These Dorians, as they were called, were not, however, the first invaders from the north, for the indigenous population had already been subjected to one or, as there is reason to suppose, more than one earlier wave of immigration.[1] The last of these earlier settlers, who may have preceded the Dorians by two or three centuries, are known in legendary history as Achaeans. They also had found the same flourishing and well developed civilization, but they appear to have blended themselves with the population, and, unlike the Dorians, to have adopted the culture which they found, and preserved its continuity without any perceptible break.

Of this historical period a striking picture is presented in the Homeric poems, which, though reduced to their literary and coherent form two or three centuries after the Dorian conquest of Peloponnesus, are obviously based upon oral traditions and poems of pre-Dorian date. But more material evidence of this early culture was brought to light by the excavations, due to Dr. Schliemann's intuition and enthusiasm, on the sites of Troy, Tiryns and Mycenae, which corroborated in a remarkable manner the historical value of the Homeric epos: for they go far to show that it depicts a society which actually existed, describes a development of art of which abundant remains are extant, and commemorates, with much imaginative and poetical elaboration, events which actually took place. If Agamemnon and Menelaus are mythical characters the graves and royal insignia of their prototypes—who may perhaps have borne their names—are still to be seen,[2]

[1] See Prof. Bury's "Hist. of Greece" (1913), pp. 5-7; also E. Meyer, I, § 525, who regards the Greeks as the first of three or four immigrant "Indo-Germanic" tribes.

[2] Sir A. Evans has noticed the correspondence of scenes en-

and if the tale of Troy is obviously amplified with poetic fancy and interpolations from a later mythology, the site of the city has now been positively identified and its destruction by a hostile power at a date near that which legend assigns to it made certain by ocular evidence.

But archaeological exploration has done much more than this. Excavations in Crete and other islands have shown that this Achaean civilization of Homer, which is identified with that which has been called Mycenaean, was but an off-shoot of a widely spread Aegean culture, hardly if at all inferior to that which flourished at the same time in Egypt, but with an independent character and continuous history of its own which can be traced from its origin in neolithic times.

That this culture had spread to the mainland before the Achaeans came to Peloponnesus and adopted it, is practically undisputed, but certain differences occur there which support the view that the pre-Achaean population had already been permeated by still earlier immigration from the north as well as from the islands. For notwithstanding the fact that the decorative art which characterizes Mycenae and Tiryns and other more distant inland sites has a close affinity with that of Crete, yet the massive walls of the towns, and the ground-plans of their fortified palaces—generally alike in themselves, but differing widely from the Cretan system of planning—tend to show that there was a previous tradition established on the mainland which was in all probability in-

graved on some of the Mycenaean signets with episodes in the Iliad. See J. H. S, vol. xxxii, p. 291. Dr. Leaf accepts the names, at least, of some of the Homeric heroes as historical. See his "Homer and History," p. 223.

herited from the building methods of earlier immigrants from the north.

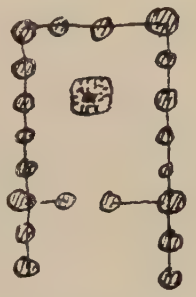
There is in fact evidence that whilst still in the neolithic stage the populations of south-eastern Europe, scattered along the course of the Danube, and even beyond the narrow straits which separate Europe from Asia, had an independent primitive culture which may be traced in their ceramic remains, though in the use of metal they lingered behind the Mediterranean regions.[1] But that this population was unsettled and shifting, and probably subject to intermittent pressure from more northerly and less cultivated tribes, may be inferred from the scarcity of walled towns and permanent structures which testify to the establishment and growth of settled communities. Only at Hissarlik, the site of Troy, which was probably colonized from Thrace, have any considerable remains of such a settlement, or rather succession of settlements, been explored. The almost continuous occupation of this site, from neolithic times till the second millenium B.C., shows that its position at the mouth of the Hellespont must always have been an important one, inviting the domination of any tribal chief who was strong enough to control and levy tribute from the seafaring merchants who traded between the Aegean and Euxine coasts, and goes a long way towards explaining its destruction by a Grecian league under Achaean or Argive leadership which forms the subject of the Trojan epic.

After this epoch-making event the general introduction of iron weapons led to intensified military activity amongst the populations of the Balkan peninsula.

[1] On the subject of Danubian culture, see Hogarth's "Ionia," pp. 110 *sq.*

Irruptions into Thessaly, and migrations of Boeotians displaced the older dwellers and dynasties, and culminated, probably during the eleventh century, in the fateful Dorian invasion of Pelŏponnesus, which later generations justified, to their own satisfaction, as the return of the Heracleidae to the rightful possessions of their mythical progenitor.

One important result of the pressure which was thus exerted on the older population was the Aeolian and Ionian migration from Greece to the opposite coasts of Asia Minor, which led as a consequence to the simultaneous rise and development, on both sides, of the Hellenic or classical phase of Art. But these shiftings of population were spread over several centuries, and their retarding influence on Greek national development is shown by the scarcity of architectural remains. From the early part of the twelfth century, which saw the fall of Troy, to the ninth century nothing in the shape of important building has been found in Grecian lands to indicate the progress of the art.



PLAN OF OLD GERMAN TIMBER HOUSE WITH CENTRAL HEARTH[1]

It may be taken for granted that northern tribes with migratory instincts or habits were accustomed to build with the timber which was plentiful in the forests and river-valleys of Central Europe, and it may be assumed that when they came south to lands where timber was

[1] See C. Schuchhardt, Sitzungsberichte d. K. Preuss. Akad., 1913.

scarce, they still retained traditional methods of planning and construction. It is a significant fact that in the second or brick-built fortress of Troy, which must be dated early in the Bronze Age, the large hall or megaron corresponds in plan with the remains of timber buildings which have been found in Northern Europe, and at the same time is the prototype not only of the halls in the sixth or historical city of Troy, but also of those in the contemporary cities of Tiryns and Mycenae.[1] This fact is not without importance in the much discussed difference between the Cretan system of planning and that of the mainland notwithstanding the obvious similarity of their culture.

The general history of architectural development shows that when communities become settled and the need for permanent structures—whether for domestic, military, or religious purposes—becomes more urgent, men learn to substitute brick or stone for wattle or wood. But the process is a very gradual one, and we may suppose that the Dorian invaders of southern Greece, like our own Saxon and Scandinavian forefathers, began by destroying the buildings which they found, then imitated them with some freedom in wood, until at last a new stone architecture, inspired with the fresh initiative of a vigorous race, arose out of the decaying remains of the older art.

It is impossible to trace its evolution step by step, owing to the disappearance of the perishable structures which were destroyed by time, or replaced by others more

[1] The northern origin of the Mycenaean megaron is not universally accepted. See Mr. D. Mackenzie's articles on Cretan Palaces, B. S. A., vol. xii. pp. 250 *sq.*; but his theory of its African origin is not convincing

permanent; but there are features in the earlier works both of Egypt and in the Aegean area which reappear in forms refined and transmuted by an exceptional genius for art—a standing marvel to the modern world,—and which give some clue to the process by which the perfected architecture of classical Greece arose.

THE THEATRAL AREA, PHAESTOS. (From Mosso's "Cretan Palaces.")

[*B. S. A. An.*

PILLARS AT THE NORTH ENTRANCE, KNOSSOS

CHAPTER II

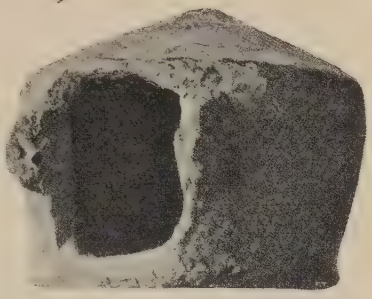
CRETAN ARCHITECTURE

THE chief focus of Aegean art is now known to be the island of Crete; but this knowledge dates only from the end of the nineteenth century, and whilst the excavations to which we owe it are still only to be studied in detached reports, and await a comprehensive revision, it would be premature to regard the subject as free from ambiguity. The difficulty is all the greater from the fact that the numerous specimens of script which have been found are as yet indecipherable, and throw no literary light on the results of archaeological investigation. But

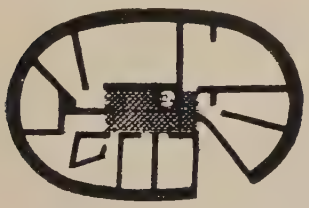
the experience of Sir Arthur Evans in the excavation of Knossos has enabled him to draw up, from a study of the pottery found at different levels, a chronological scheme which has been generally adopted, and to assign comparative dates to the copious remains of ground-plans and other fragments of architecture which have been disinterred. Moreover small objects of Egyptian art found in Crete, and on the other hand specimens of Cretan pottery found in Egypt, not only help to synchronize the Minoan chronology with the Egyptian, but also prove that there was at least an intermittent intercourse between the two countries. It has thus become evident that the pre-Ramesside art of Egypt was not without influence on that of Crete, a fact which is to be taken into account in forming a general idea of the evolution of architecture in the Aegean area. But this idea must in any case remain an imperfect one, seeing that with few exceptions the remains of buildings are limited to foundations and footings, and that so far as the islands are concerned there is no single façade, no perfect column and no example of roofing actually extant. The appearance of these features can only be inferred from representations in wall-paintings, coloured tiles or smaller works of art.

Sir A. Evans has named the peculiar culture of the Aegean after the legendary Minos and divides the age during which it rose, culminated and decayed into Early, Middle and Late Minoan periods, each of which is subdivided into three stages. The period of this Minoan civilization may be regarded as coterminous with the Age of Bronze, for when iron weapons came into general use the flourishing days of Crete were past and its art was already drifting towards decay. Though it had spread westward as far as Italy and eastward as far as

Cyprus it collapsed suddenly on the mainland under the assault of the Dorians: and though it may have held the germs of a later efflorescence it rose again only after a dusk of some centuries and in a vastly altered form. It is possible to trace it in Crete from its inception, for the site of Knossos shows a continuous occupation from the late stone age, though no remains of neolithic buildings have so far been found there. This is sufficiently explained by the unbroken continuity of the settlement and the constant renewal of its buildings.



TERRA-COTTA MODEL OF A PRIMITIVE CRETAN HUT. (Mosso.)

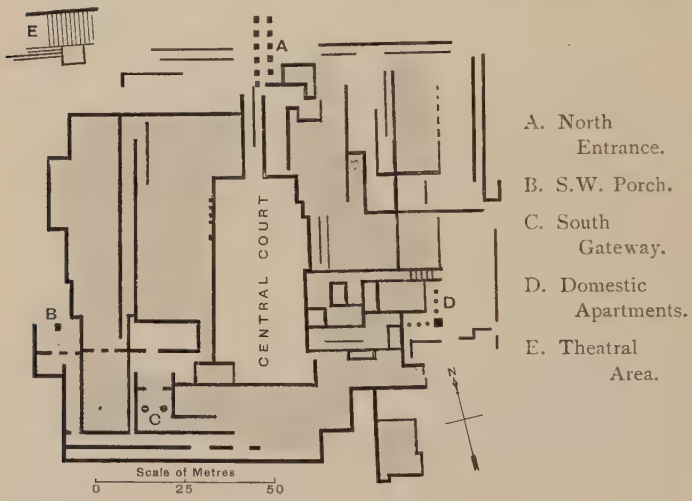


PLAN OF THE OVAL HOUSE, EAST CRETE. (Noack.)

The oldest remaining type of a structural habitation in Crete is probably to be found in a neolithic settlement at Magasá.[1] A cave hollowed beneath a jutting mass of rock appears to have been protected by a stone wall a few feet in front of it which no doubt supported a simple roof and formed a one-roomed house. That the primitive inhabitants of Crete, as elsewhere, lived in circular huts of wattle and daub or clay may be inferred from certain

[1] Near Palaikastro at the eastern extremity of Crete.

models of such tenements which have been found in several of the islands. The remains of a large oval house in the eastern part of Crete, though it is of more elaborate construction, and is assigned to the first part of the middle Minoan period[1] must be regarded as a development from a simpler type of curvilinear plan.



GENERAL PLAN OF THE PALACE, KNOSSOS

Another indication of a primitive use of circular huts is found in the bee-hive shaped tombs, or *tholoi*, for their form must have been copied from that of ordinary dwellings, though it ultimately acquired a purely sepulchral character. A number of ruined specimens occur in Crete, the oldest of which, near Hagia Triada, is assigned to the Early Minoan period. At the same time it must be noted

[1] Hall, "Aeg. Arch.," p. 113; Burrows, p. 169.

that the walls of the oldest stone structures in Crete, especially in the northern part of the island, are generally rectilinear,[1] and show an earlier adoption of that type of plan than is evident in other localities such as Olympia, or Orchomenos in Boeotia, where the remains of primitive buildings show curvilinear ground-plans.

[*B. S. A. Ann.*

PILLAR, INCISED WITH DOUBLE AXES
From the west wing, Knossos.

It was during the Early Minoan period that architecture must have begun to assume a systematic form, but the disappearance of all buildings of that period has left no means of judging of their appearance.

The principal palaces at Knossos and Phaestos as they

[1] This is shown in the neolithic settlement referred to on p. 11. It was explored by Mr. R. M. Dawkins. See B. S. A., vol. xi, p. 263.

were remodelled in the late Minoan period, comprised a large central court surrounded by an intricate series of rooms and corridors, the uses of which are not always obvious. At Knossos there are some sub-structures at the north end unrelated to the later buildings which seem to have been the foundations of a massive tower, and may have formed part of an early palace or chieftain's dwelling.[1] A double row of rectangular stone pillars outside the north entrance, but not in axial alignment with it, seems also earlier than the rest of the building. The occurrence of similar square stone pillars in the basement of the palace and in other houses, and the fact that some of them are marked with the symbolic double axe has led to the conclusion that they have a religious character, and suggests that this double row of pillars was not structural, but was analogous to the avenues of sphinxes or the pairs of obelisks which mark the entrances to Egyptian temples. The palaces must in fact have had the character of temples, for of any other temple-buildings there are

DOMESTIC SANCTUARY AT PHAESTOS
(Mosso.)

[1] See B. S. A., vol. vii, pp. 35, 36, and vol. ix, pp. 22-27; also Hall, "Aeg. Arch.," pp. 126, 129.

no indications in Minoan or Mycenaean architecture.[1] Small rectangular stone-lined cavities found in the palaces which were at first supposed to be baths are now thought to have served as private sanctuaries; and representations on a wall painting from Knossos of a building with free standing columns and adorned with pairs of horns which, like the double axe, had evidently a symbolic character, are supposed to be copied from the front of some portion of the palace reserved for religious rites. (See illustration, p. 16, No. 2.)

The use of porticoes, in which, however, the supporting columns were almost always of timber on stone bases, became a striking feature in the later phases of Cretan architecture, and it may well be that some reminiscence of the fine colonnades of Mentuhetep or Hatshepsut at Dēr-el-Bahri inspired the Cretan builder.[2] There are other details in Cretan art which lend colour to this view. But on the other hand there is a gradual development of the columnar system on lines which seem peculiar to Crete which goes far to prove its essential individuality.

The use of a single prop, or sometimes of more than one, to support a roof is an obvious expedient which may be found in primitive architecture anywhere. An early Aegean instance of a house in which the roof timbers were sloped upwards from the walls to meet at the top of a central column occurs in the island of Therasia off Santorin; but though no metal was found in it the details

[1] There are, however, remains of small enclosures, accessible to the public, in the two town sites of Goulas and Gournia, which seem to have had some sacred character or purpose. See Sir A. Evans' article on "Mycenaean Tree and Pillar Cult," in J. H. S., xxi, p. 100, and Hawes' "Crete," p. 101.

[2] See "Arc. of A. Egypt," pp. 52 and 90.

[*B. S. A. An.*

WALL FRESCO FROM KNOSSOS

Representing a colonnade with horns of consecration, and double axes in the columns.

Hellenic Society

WALL FRESCO. Showing an architectural façade, with the symbolic horns.

of plan and construction point to a middle Minoan rather than an earlier date.[1] It is to be noted that no column base has been found in the second settlement at Hissarlik, notwithstanding the large scale of the principal megaron the roof of which must have had a span of 34 feet. It is only in the sixth city, the Homeric Troy, that there is any indication of the use of columns[2] but this was at a date when Cretan architecture had already attained its highest development.

In the absence of any evidence to the contrary it seems that the use of the column was developed independently in Crete, but there is nothing to show that it was systematically employed as an architectural feature before the building of the Middle Minoan palaces at Knossos and Phaestos. In both these buildings a form of external doorway or entrance is found which is peculiar to Crete—a rectangular covered porch with a single column in the centre of the front, and a door in the back-wall which instead of being central is close to one side and leads into an interior passage or corridor. The span of the porch was not long enough to require a central support and the column must have become a conventional feature, illustrating a predilection, very evident at a later date, for double doorways, whilst it is consistent with the un-

[1] It is evident that this and other buildings existed before an eruption which partly submerged the ancient island of Thera. The date of this was originally placed at about 2000 B.C. (Fouqué: Santorin et ses éruptions), but it is now placed some centuries later. See Perrot and Chipiez, vol. vi, p. 135, and plan, p. 144; also Dussaud, p. 88 *sq.*

[2] The position of a column-base in one of the halls seems to indicate that there was a central row of columns dividing it into two aisles.

symmetrical position of the inner door of entrance.[1] The column in these porches was always of wood, and its position is indicated by the stone base which remains. Wood continued to be used for all, or nearly all, columns

FLOOR OF THE SOUTH-WEST PORCH AT KNOSSOS
(From Noack, O. and P.)

of cylindrical section, which accounts for their complete disappearance beyond a few charred fragments.[2] In the later palace at Phaestos this simple type of porch is

[1] In the south-west porch at Knossos there was also a central door in the back-wall, but this led only to a small room, possibly the porter's lodge.

[2] Apparently stone columns were occasionally used. In the substructures of the eastern side of the palace at Knossos, Sir A. Evans found "parts of column-drums of marbled grey material resembling granite" which he supposes to be debris from a de-

developed into a more stately entrance approached by a wide flight of steps. The central column was still retained on the outer plane, but the interior follows to some extent the arrangement of the Cretan megaron which will shortly be described. Its dimensions, however, from front to back are so reduced that it was evidently not intended for domestic habitation, and the structure is now regarded as a reception hall for use on ceremonial occasions.

At Knossos also, near the south end of the west wing of the palace, there is a state-entrance or propylaeum which departs from the more simple plan. Here, a few feet within the side-walls, two rectangular pillars and their responds gave three openings into a nearly square chamber, the roof of which was supported by two columns. A wide opening, in this case in the centre of the back-wall, led into an inner courtyard from which it seems probable that the principal apartments of this side of the palace, above the basement, were entered by a flight of shallow steps. All positive indications of this upper floor and approach have now disappeared. Yet the position of certain walls and pillars in this western wing suggests that there had existed above them a hall with a row of three columns along its central axis—an early method of roof-support of which there are other instances.[1]

A gradual development of the use of columns may be deduced from the remains of later halls or megara at both Knossos and Phaestos. The numerous column-

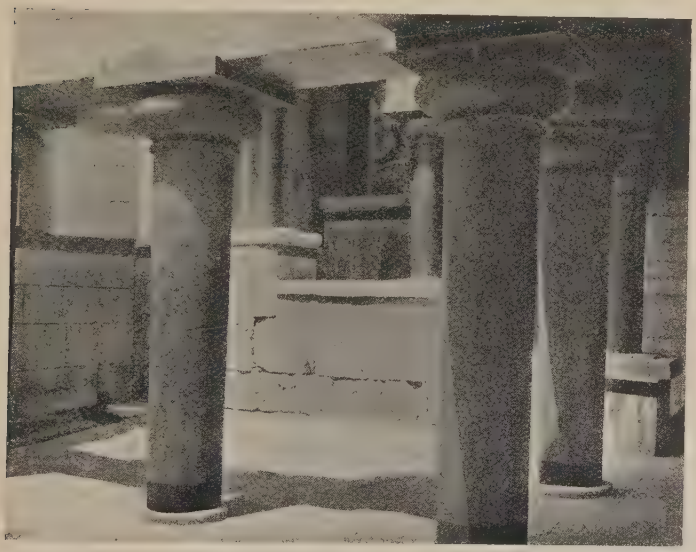
stroyed megaron above. B. S. A., vol. vii, p. 88. That these are very exceptional may be inferred from a remark by him in J. H. S., xxi, p. 195.

[1] See B. S. A., vol. vii, pp. 21 *sq.* A supposed case at Troy has been mentioned, and there are others of later date. See *post*, pp. 63, 65.

bases which are found in the foundations of the palaces as reconstructed in the Late Minoan period show that another disposition of the roof-supports had become conventional. The climate of Crete allowed of a light style of construction with many external openings and gave rise to a form of megaron which is peculiar to the island. Of this the so-called "Hall of the Double Axes" in the eastern wing at Knossos is a typical example (see plan, p. 23). This hall at its east end and for part of the south side was free from contiguous buildings, and had an outlook over the valley of the small river Kairatos. Instead of solid walls it had merely a series of door-jambs between which were doors of two wings which could be opened and fitted back into recesses in the jambs. When open they left unobstructed communication with an external veranda which was returned round the south-east corner of the building and was supported by wooden columns with a rectangular pillar at the angle. Internally the hall, which was about 53 feet long by 23 broad, was divided into three compartments. At the back of the fore-hall which communicated with the veranda and was about 18 feet deep was another line of doors and jambs corresponding in position and form with the first and leading into an inner hall of about the same size, which was evidently the principal domestic apartment. On the further side of this the floor was crossed by a low stylobate on which stood three columns and beyond which was a third division about ten feet deep. This differed from the rest of the hall inasmuch as its walls were composed of larger blocks of limestone and its floor consisted of cement instead of the square flags of gypsum with which the rest was paved. The reason for this was that this back space was left open

[*B. S. A. An.*

LIGHT-WELL, HALL OF THE DOUBLE AXES, KNOSSOS

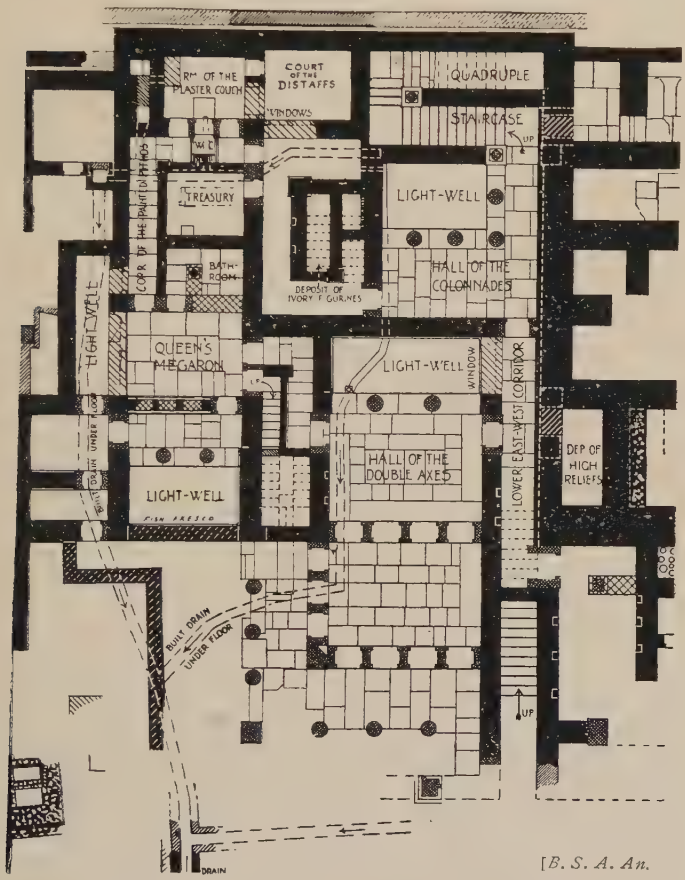


[*B. S. A. An.*

THE PILLARED HALL AND STAIRCASE, KNOSSOS

(See section, p. 25.)

above and formed a well for ventilation and the admission of light, a feature which was characteristic of and peculiar

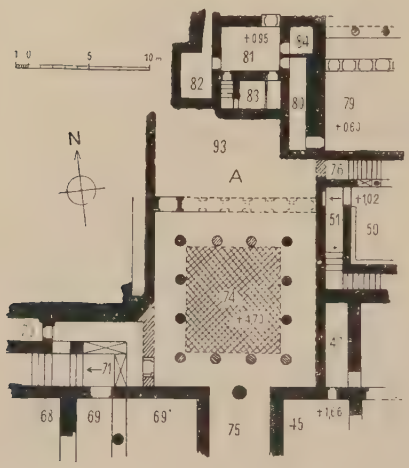


[*B. S. A. An.*

PLAN OF THE DOMESTIC QUARTER, KNOSSOS (p. 20)

to the Cretan megara. Another distinctive fact is that there are no signs of a hearth, but this is obviously due

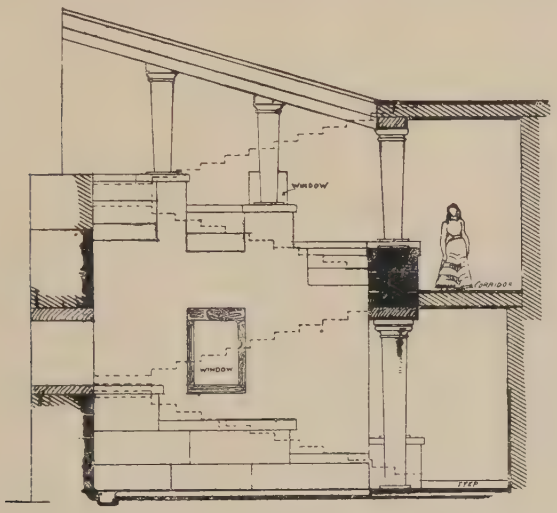
to the mildness of the climate. The use of the light-well is explained by the intricate plans of these large palaces in which rooms, corridors and stairways are so compactly intermingled as to have made the palace of Knossos—"the place of the *labrys* or double axe"—the eponym of all succeeding "labyrinths." Such at least is the reasonable assumption of its excavator, supported as it is by classical tradition. The fact that some portions of the palace had four or more storeys made such light-wells as necessary as they are in the large warehouses or subdivided "mansions" of the present day. There are no less than five such small open spaces or courts in the domestic quarter in which the Hall of the Double Axes and the adjoining Queen's Megaron are situated. One of these served to light the fine staircase and its columned vestibule which lie at the rear of the large megaron. The partial restoration of this section by Sir A. Evans gives a good idea of the graceful employment of columns both on the ground-level and on the parapet of the staircase.



A CLOISTER, PHAESTOS. (MOSSO.)

Further evidence of the architectural use of columns may be seen in the contemporary palace at Phaestos, and

in the smaller royal residence--as it doubtless was—at Hagia Triada. In these are found the remains of small peristyle courts which were surrounded by roofed "walks" after the manner of a medieval cloister. Thus they not only supplied light and air to the surrounding rooms and corridors, but afforded a covered communication between



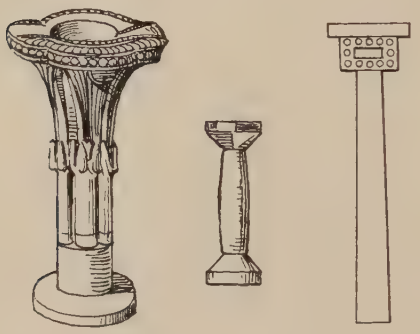
[*B. S. A. An.*

SECTIONAL ELEVATION OF THE QUADRUPLE STAIRCASE (p. 21)

them. The pleasing effect and practical utility of these small symmetrical cloisters, sheltered not only from the midday sun but also from the cold winds from which Crete is not exempt, may easily be realized.

The use of columns on a more extensive scale is illustrated in the great central court at Phaestos, along the east side of which was a continuous portico supported by

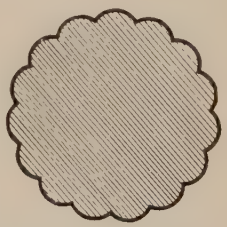
alternate columns and rectangular pillars. This was probably balanced on the west side by a range of columns and pilasters which decorated the front of the rooms and passages on that wing. The doorway at the north end of the court, which led to the more private portions of the palace, had a semi-cylindrical pilaster on each side, and so far as Phaestos is concerned this seems to be the only suggestion of the use of cylindrical stone columns.



COLONNETTES AS LAMPS, KNOSSOS — COLUMN SHOWN ON A VASE.

CRETAN COLUMN-FORMS

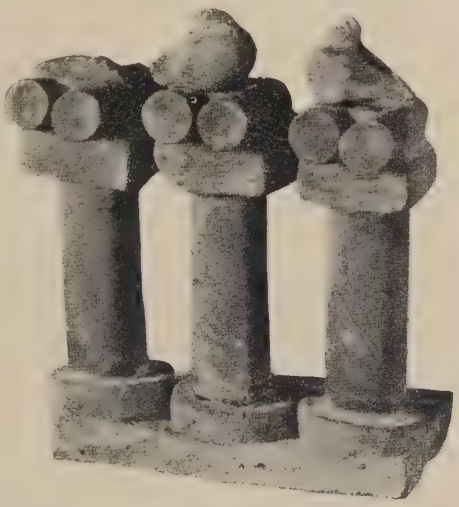
The destruction of all wooden columns leaves their actual form somewhat doubtful. From decorative borders on frescoes (p. 16, No. 1), which appear to imitate a colonnade, it is supposed that the characteristic type had a diameter which increased upwards, with a heavy spheroidal capital. For this reason columns of this form were adopted by Sir A. Evans in his reconstruction of the columned hall and "quadrupal staircase" at Knossos (see pp. 16 and 21). Its use is further



SECTION OF COLUMN RECONSTRUCTED FROM THE IMPRESSION

(See "Archaeologia," 1914, p. 63.)

indicated by representations of *stelae* of similar shape on engraved seals. It is very probable that the earliest form of column was a tree trunk of which the smaller end was inserted in a stone socket whilst the other end provided an enlarged surface to support the beam or primitive architrave.[1] But there is evidence that this inversion of later convention was not invariable. There are some representations of columns which are cylindrical or diminish upwards and have rectangular capitals. In others, there are indications that the surface was channelled with vertical grooves, which are characteristic of later phases of architecture.[2]



[*B. S. A. An.*

DOVE COLUMNS. From Knossos.

The most direct evidence of a form of column-shaft was found in the building known as the Little Palace at Knossos, which lies at a short distance from the north-west angle of the larger palace. Here a row of columns in one of the central rooms had been filled in and con-

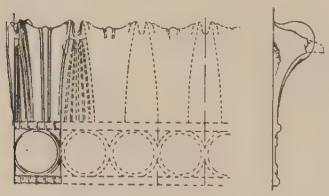
[1] See Choisy, "Hist. de l'Architecture," vol. i, p. 234.

[2] Such may have been the case in some carbonized remains found by Sir A. Evans. See B. S. A., vol. vii, p. 105.

verted into a solid wall of rubble and plaster some time after the catastrophe in which both buildings were ruined. In the remains of this wall were discovered hardened impressions or moulds of the original columns, which had been reduced to ashes by a later conflagration. These moulds show that they consisted of clustered shafts of fifteen colonnettes or convex reedings similar to those of Amenhetep III at Luxor, or of Seti I at Kurna. There is unfortunately no evidence as to the form of the capital.[1]

MODILLION-LIKE OBJECT

About ½ scale. (Ashmolean Museum.)



[*B. S. A. An.*

SUGGESTED APPLICATION OF THE ABOVE OBJECTS

This indication of Egyptian influence is corroborated by the occurrence of imitations of the lotus and papyrus in various works of art and particularly in the well known painted chest found at H. Triada[2] but the freedom with which any borrowed decorative motives were treated shows that this influence was mainly incidental and in nowise impugns the originality

[1] See the section, p. 26.

[2] Well described and illustrated in Hall's "Aeg. Arch.," ch vi There is a facsimile of it in the Ashmolean Museum.

and individual character which distinguish Aegean art during the period of its growth and vitality. An instance of this originality is shown in some small objects which have the form of a consolè or bracket, the use of which is uncertain. It has been suggested that they were used side by side as a continuous ledge or string-course; but their small size—about three inches in length—seems inconsistent with their use in architecture.[1] A brass matrix in the Ashmolean museum implies that they were moulded for use as applied ornament such as ears for vases. They are chiefly interesting as giving a

[*B. S. A. An.*

WALL-ORNAMENT

primitive form of the modillion which is characteristic of the Corinthian order of architecture and which occurs exceptionally on the north door of the Erechtheion.

There is a carved architectural ornament which seems to have been widely used. It consists of a series of elongated rosettes, or rather aster-like flowers, each of which is bisected by a narrow vertical band of spirals or other designs, which probably formed a frieze or string-course on the walls of rooms; but it is found also as a painted ornament as on the fresco shown on p. 16(2). It occurs also in Mycenaean architecture.[2]

There is one striking feature of the great palaces which

[1] See B. S. A., vol. ix, p. 66. [2] See "Aeg. Arch.," p. 198.

must have given a special character to their architecture, namely, the fine flights of steps which are found on the west side both at Knossos and Phaestos. One which led up to the state entrance in the latter has already been mentioned.[1] Another adjacent to it, but of earlier construction, at the north end of the area which lay in front

[*B. S. A. An.*

THE THEATRAL AREA, KNOSSOS

of it, had nothing above it but a plain wall from which it appears to have been constructed solely to accommodate spectators of some choric or athletic displays which took place in the paved court below. A similar "theatral area" more distinctly defined is found at the north west angle of the palace at Knossos, on two sides of which wide flights of broad steps seem to have served the same pur-

[1] See *ante* p. 19, and illustration, p. 8.

pose. Nothing analogous, or with a similar architectural effect is found in Egypt or elsewhere, until the Greek theatre was fully developed some ten centuries later.

The internal decoration of Cretan palaces consisted chiefly of carved bands of ornament or of paintings on the plastered walls of human figures, animals, fishes, octopods, and patterns derived from vegetation or simply geometrical. In some cases the figures are in partial relief.

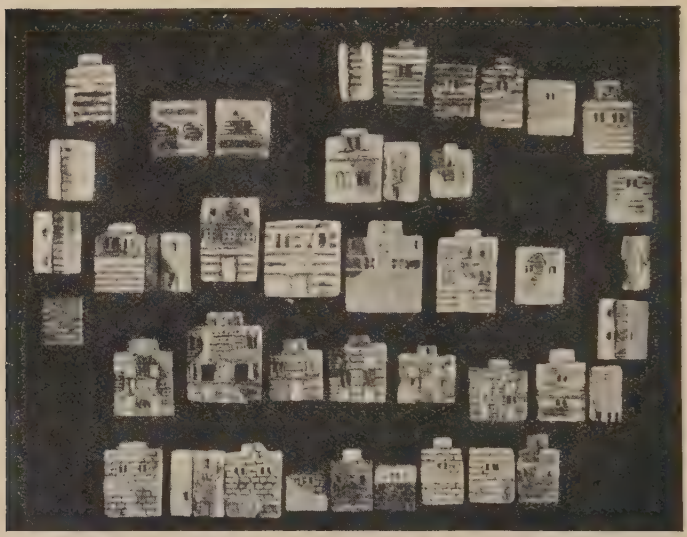
The use of this mural decoration may have been suggested by the coloured wall-reliefs, which were a striking feature of Egyptian architecture, and appear in temples and tombs as early as the sixth dynasty. But here again the native independence of the Cretan artist is evident. The imitation of nature is more direct and there are no signs of the rigid adherence to fixed conventional methods which characterized the Egyptian draughtsman to the end. If one may judge by the floor-paintings at Tel-el-Amarna in which bulls and birds are represented with a naturalness and vivacity foreign to Egyptain art, it would seem that Amenhetep IV had gone to Crete for the decorators of his somewhat bizarre palace.[1]

Of the outward appearance of smaller dwellings there is fortunately some evidence in a number of painted and glazed terra-cotta tiles or small plaques which represent

[1] See "Arch. of Anc. Egypt," pp. 78-82. It is in the scanty remains of two Egyptian palaces rather than in the temples, that a relationship with Cretan architecture is apparent. Of the palace of Amenhetep III at Medinet Habu Messrs. King and Hall say:

"These remains consist merely of the foundations and lowest wall-courses of a complicated and rambling building of many chambers, constructed of common unburnt brick and plastered with white stucco on walls and floors, on which were painted beautiful frescoes of fighting bulls, birds of the air, water-fowl, fishponds, etc., in much the same style as the frescoes of Tell-el-Amarna ex-

house fronts. From these it is evident that houses often consisted of two or more storeys with a central door and



[*B. S. A. An.*

GLAZED TILES REPRESENTING HOUSE-FRONTS

windows symmetrically arranged. It is conjectured that the window frames were filled with oiled and coloured

ecuted in the next reign. There were small pillared halls, the columns of which were of wood mounted on bases of white limestone. . . . In several chambers there are small daïses, and in one the remains of a throne, built of brick and mud covered with plaster and stucco upon which the Pharaoh Amenhetep sat." K. and H., p. 354. In many respects this might pass for a description of Knossos, and in the palace of Amenhetep's son at Tel-el-Amarna, the remarkable painted pavement and the pillared hall with something like a light-well at the back are no less suggestive of Cretan influence. Both palaces are contemporary with the Late Minoan period.

parchment.[1] The roofs appear to have been flat, sometimes with a smaller attic or tower on the top. The appearance of these modern-looking fronts, confirms the impression derived from many of the contents and internal details of the palaces—such for instance as the pipes for water-supply, the contrivances for sanitation and drainage, the carved ivories, the inlaid gaming-board, etc.—that the domestic features of Cretan civilization were far less remote from modern ideas of comfort and luxury than any that are to be found in western Europe before the end of the mediaeval period.

The small palace at Hagia Triada may be taken as representing Cretan architecture at its latest culmination. It is true that it lacked some characteristic features, such as the wide flights of steps—or the magnificent internal staircase at Knossos. But in the size of the principal megaron, and the planning of the columned courts communicating with it, it shows some advance; whilst the remains of decoration, and objects of art, the seals, the steatite vases, and the fine painted chest found within it show that its builders and inmates enjoyed the highest culture of the period.

This was not the last building on the spot, for after the catastrophe which it shared with the rest of Crete, the site was reoccupied by a new building on massive substructures which were raised above and independent of the older foundations: but the new upper buildings were probably of lighter construction and have left no certain traces of their form and plan.

[1] "B. S. A.," vol. viii, p. 15; Burrows, p. 20. Mr. Hall suggests talc, "Aeg. Arch.," p. 122.

THE LION-GATE AT MYCENAE

CHAPTER III

Mycenaean Architecture

THAT Crete, at the height of its civilization, was a great sea-power and thereby exercised a dominating influence on the islands and coasts of the Aegean may be taken for a historical fact, and it is more than probable that the Cretans colonized the nearer portions of the

mainland, and formed settlements at places more remote. In any case there is abundant evidence that a similar culture took root in Greece and characterized the civilization which the Achaeans found and adopted, and which is reflected in the Iliad and Odyssey.

This fact became clear only when the discoveries in Crete revealed the identity, in all the minor arts, of the Minoan culture and that which Schliemann's excavations at Mycenae and Tiryns, supplemented by the work of Dr. Dörpfeld and other explorers, had previously brought to light. The frescoes of Tiryns, the gold-work from the shaft graves at Mycenae, the celebrated gold cups of Vaphio, and numerous other objects which have been frequently illustrated show so close a similarity to Cretan designs that they are obviously the work of craftsmen of the same school.

This art was at first named Mycenaean, and though this term is sometimes considered superfluous, inasmuch as it is synonymous with Minoan in its latest phase, yet so far as architecture is concerned there are differences which makes its retention convenient.

The main distinction is that whereas there was in Crete no architecture of a military nature, all the important settlements on the mainland were, no doubt for imperative reasons, protected by more or less massive walls. In conjunction with this fact, and probably partly in consequence of it, the plans of the chieftains' dwellings or palaces are of a type which, whilst it was altogether foreign to Crete, seems to be only an elaboration of an earlier mainland tradition.

The only important fortified sites on the Grecian mainland that have not been greatly altered by later occupation are those at Mycenae, Tiryns, and Goulas (Gha or Gla)

on Lake Copais in Boeotia. The last named is the latest, and as it seems to have been a more purely military post, and contains fewer features of architectural importance than the others, it need not be further described.[1]

The best example of what was evidently both a fortress and a palace is the small but strongly fortified hill of Tiryns. It lies only a few miles from the harbour of Nauplia—the port through which intercourse with the islands and Crete would naturally be conducted. The outer walls are of extraordinary strength and constructed of such ponderous blocks of stone as to lead the ancients to ascribe them to superhuman builders. Some of the blocks are over ten feet in length and five in breadth. Their exceptional character is probably accounted for by the natural weakness of the position, which was a low hill, rising from thirty feet at its north end to sixty on the south, lying in the midst of a wide alluvial plain. The thickness of the wall varies in different parts from sixteen feet to fifty-seven, and in some places it has still a height of twenty-four feet. The actual appearance of such walls when complete with their parapet may perhaps be inferred from the fragments of a silver vase upon which a siege-scene is depicted.[2] One remarkable feature in this tremendous rampart, is a series of six chambers like casemates in the thickness of the wall and considerably below the level of the hill-top. They open out from a subterranean corridor which is reached by a narrow staircase from above. There was another similar series on the east side. It is probable that they were used for storage

[1] A description will be found in "The Mycenaean Age," by Tsountas and Manatt, Appendix B. Also by Noack, who identifies it with the ancient Arne, in "Athen. Mitth.," vol. xix, and by Ridder in B. C. H., 1894.

[2] See "Aeg. Arch.," pl. xxxi.

PLAN OF THE CITADEL AND PALACE, TIRYNS

A. Main Entrance, with Ramped Approach.
B. First Gate.
C. Outer Court.
D. Principal Gateway of Palace.
E. Great Court.
F. Inner Gateway and Court.
G. Principal Megaron.
H. Smaller Megaron and Court.
K K K. Chambers in the Wall.

rather than for any military purpose. On the west side the wall projects in a large semicircular bastion at the foot of which was a postern communicating by a long flight of steps with the centre of the citadel.

The principal entrance was on the east side and was approached from the north by an external ramp alongside the wall, through an opening within which the road was continued between the outer and an inner wall. Here it was intersected by a strongly built gateway through which it emerged into a narrow courtyard. On the east side of this court, based upon the outer wall of the fortress, was a covered portico supported by columns of which only the stone bases remain; on the opposite side was a great gate-house which formed the actual entrance to the palace.

It is in the arrangement of this palace and its precincts, that a divergence from the Cretan plan, and at the same time a general correspondence with that of the second Troy of 600 years' earlier date, are apparent. It is true that at Troy the material employed gives it a special character, for both the outer rampart and the inner walls are built mainly of crude brick; but the ramped approach, the strongly built outer gates, the internal passage between walls, the inner gate and courtyard, and the isolated megaron are features, due evidently to their military character, which are common to both Troy and Tiryns.

The great gateway in the courtyard at Tiryns must have been an imposing architectural feature, and is discriminated from the Cretan propylaea by its size and plan, and probably by a less ornate, and more miltary character. It was over 40 feet wide and was similar in essential features to those of Troy II—that is to say it consisted

of a main wall with a central opening closed by a double door, flanked on each side by a cross wall which projected both in front and at the back, giving it an H shaped plan. So far it resembles the gateways at Troy, but the ancient plan was developed at Tiryns by the addition of two columns at the front of the portico, giving it the form known in architecture as *in antis*. The porch at the back was similar but rather deeper, and it appears to have been further enclosed by the addition of short walls between the columns and antae.[1] As is the case at Troy the form of the upper part of the roof is not recoverable, but it seems probable that it had a tower-like elevation.

This gateway led into the outer court of the palace itself, at the south side of which was a small columned portico ; on the north side, towards the west, was another gateway similar to the first but somewhat smaller, which led into the principal inner court, a quadrangle of 56 feet by 52. The stone bases show that a colonnade, of which the gateway formed part, ran round three sides of the court. On the north side was the great hall or megaron, the floor of which, a rectangle of 80 feet by 33, very nearly corresponded in width, and probably also in length, with the large megaron of Troy II. The entrance was at the end, which lay in a line with the side of the quadrangle, and was raised by two steps above the level of the ground. It was fronted like the gateways by two columns in antis. In the back wall of the portico three doors led into an ante-chamber, from which a single opening, apparently without any solid door, gave access to the inner hall which occupied nearly half the floor-

[1] See Schliemann's "Tiryns" (ed. Dörpfeld), p. 196. That these gateways were intended for defence is noticed by Mr. Hall, "Aeg. Arch.," p. 136.

space of the building. As in other cases, there is no evidence as to the form of the roof, but notwithstanding the considerable span there is no difficulty in supposing that it was flat. For in the middle of the hall was a great circular hearth, round which still remain the large round stone bases of four columns which probably supported the framing of an opening or louvre through which smoke could escape and light be admitted. It is obvious that they might also have supported the ends of cross-beams and considerably facilitated the construction of a horizontal roof. The absence of a light-well at the back, which in Crete seems to have been indispensable, is sufficiently accounted for by the central hearth and the opening above it.

On the east of this megaron, but separated from it by a wall, lay a smaller hall with an inner and outer courtyard in front. The only means of communication between the two buildings was by a somewhat intricate series of passages behind the larger hall. The secluded position of this portion of the palace suggests that it was set apart for women. The hall is of the same type as the other, but simpler in plan, having no intermediate chamber between the vestibule and the inner room, whilst the hearth, which was square, had no surrounding columns.

There is obviously a wide difference between Crete and Argolis in the social ideals suggested by the planning of their halls, and in the general relation of the buildings to the courtyards round which they stand. The more isolated character of the mainland megaron is shown in the absence of the open walls and multiplied doorways of the Cretan halls, which by means of doors in the back were in close communication with other portions of the

palace. The whole mainland plan, judging by the general similarity, found not only in the contemporary Troy (VI) but in the much earlier brick-built fortress, points to a traditional type of fortified palace, probably brought to Peloponnesus by northern invaders, who, aggressive themselves, were bound to provide against the aggression of others. On the other hand, the Cretan palace remained exceptional, and was apparently of native invention. It may have been evolved, as Noack suggests, from the simple grange or country-house of which the oval-house at Sitia must have been a type:[1] in any case it was developed in peaceful surroundings with no apprehension of foreign invasion. The central courtyard surrounded on all sides by domestic or official buildings, for which it provided ready means of inter-communication,—the exterior terraces and porticoes with no defensive girdling wall beyond, speak of a highly developed and undisturbed social life. In the mainland palace, on the other hand, the courtyard is much less involved in the general plan, much less part and parcel of the internal life of the community than is the case in Crete. It has more the character of a defensive area intended for the marshalling of men-at-arms and the protection of the gates and principal buildings, and suggests an armed garrison ready to defend the citadel to the last.[2] The difference may be likened to

[1] See "O. and P.," pp. 53 *sq.*, and p. 12, *ante*.

[2] It must be observed, however, that the subordinate divisions of the palace at Tiryns, such as the chambers on the east side and a bathroom on the west, are much more closely compacted than appears to have been the case either at Mycenae or Troy VI. This may be partly due to the confined character of the site, but more definitely to the adoption of Cretan domestic habits entailing a corresponding modification of plan. See Hall, "Aeg. Arch.," p. 132.

that between the bailey of a mediaeval castle and the cloister-garth of a monastery or a college-quadrangle.

Apart from differences in the general plan, there is abundant evidence that the architecture of Argolis, as well as all the smaller art, was intimately connected with that of Crete. The frequent use of the column, which is unknown in the earlier Troy and can only be inferred in the sixth city, must have been due to Minoan influence. The decoration of the walls indicates the same origin. Along the side-walls of the vestibule of the great megaron was a skirting of alabaster carved with a pattern of rosettes or palmettes divided by vertical bands of smaller ornaments, a constantly recurring Mycenaean motive which is an imitation of a similar ornament found at Knossos.[1] In this case the interstices are filled with a blue vitreous paste which is identified with the *kyanos* of Homer and helps to confirm the close relationship between the culture depicted in the Odyssey, and that which actually existed under the Achaeans. More conclusive still as to Cretan influence, are the remains of a fresco depicting a scene of "bull-grappling" reproducing almost exactly a similar painting from Knossos.

PART OF A PORPHYRY BAND OR FRIEZE FROM MYCENAE

Showing the bisected marguerite pattern. (Schliemann.)

The comparative completeness of the ground-plan of

[1] See "B. S. A.," vol. vii, § 18. This ornament is often compared or confused with the triglyphs of the Doric frieze, to which it has a very distant and accidental resemblance. The triglyph is almost

Tiryns, and the remarkable character of its walls, make it the most interesting example of a mainland fortress contemporary with the latest phase of Minoan art, though it was politically less important than the neighbouring city of Mycenae. There the acropolis differs considerably in its natural features. Its area is half as large again, and being situated on an outlying spur of the mountains which enclose the Nauplian plain, at a height of about 900 feet above sea-level, it was much more easily defensible. The walls, therefore, though solidly built, show no such tremendous blocks as those at Tiryns, but except where they have been rebuilt or extended at a later date, they are similarly constructed. The palace buildings have been to a large extent obliterated by the foundations of a much later temple, but enough remains to show that they had the same general character and that a megaron with its portico, forehall, and inner hall with a central hearth followed the same plan as at Tiryns.

The special features of interest at Mycenae are: (1) the circular graveyard adjoining the acropolis on its west side with its six royal shaft-graves, (2) the later beehive shaped tombs or *tholoi*, and (3) the celebrated Lion-gate near the north-west angle of the walls. (See p. 34.) It is unnecessary to enlarge upon the shaft-graves, the discovery of which is Schliemann's most widely recognized title to fame. They and their marvellous treasure of wrought gold, and other objects of artistic workmanship, have been minutely described in various well-known works.[1] But the carved

certainly a relic of ancient timber roof construction, whereas the ornament in question is a translation in stone of a painted decoration which is found in frescoes and on pottery. See *ante*, p. 29.

[1] See Schliemann's "Mycenae"; Schuchhardt's "Schliemann's Excavations"; Tsountas and Manatt; "The Mycenaean Age," etc.

stone slabs which marked some of the graves have some architectural significance, inasmuch as they show a use of

CARVED TOMB SLAB, MYCENAE. (Schliemann.)

stone which is not characteristic of Minoan art, whilst the carving on them seems to indicate some indirect oriental influence. The spiral or convoluted ornament which ap-

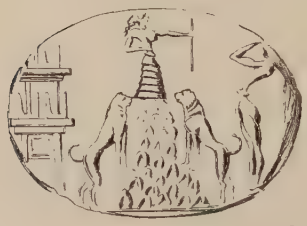
pears on them is by itself no proof of this, for it is common everywhere in the bronze age, and has even been found in neolithic vases from Bosnia[1] but the attitude of the charioteer with squared shoulders and head in profile is strongly reminiscent of Egyptian art.[2]

Another line of influence, more probably Asiatic, is shown in the Lion-gate. The wall in which it is inserted is constructed of large rectangular blocks of limestone laid with a regularity which indicates a later date than that of most of the walls. The courses above the aperture of the gateway are corbelled over the large lintel so as to leave a triangular space. This is filled by a thick slab of limestone on which are carved in high relief the famous lions from which the gate is now named. They stand opposed like heraldic supporters on either side of an altar-like structure on which their fore-paws rest, and which forms the base of a small column with a slightly bulging capital. Above the capital is a kind of impost-block the front of which is carved in the form of four small disks between two horizontal fillets. The faces of the lions, which looked outward, are now gone, and from the dowel holes which remain it is evident that they were not of one piece with the rest of the relief, and must have projected beyond the general plane. The four disks mentioned seem to represent the ends of cylindrical rods, such as occur on the terra-cotta votive object, representing columns supporting

[1] See Hogarth, "Ionia," p. 113. It has also been found on stone altars in a neolithic house in Malta. See "Archaeologia," vol. lxvii, p. 134.

[2] The same attitude occurs in Hittite sculptures. See Garstang, "The Land of the Hittites," p. 114. Mr. Hall ("Aeg. Arch.," p. 142) notices the fact that representations of chariots in Minoan and Mycenaean art are exactly like those in Egyptian reliefs.

doves, found at Knossos (p. 27). They are, in fact, a decorative motive found not only in the Aegean architecture of the period, but also in the much later Lycian tombs. Whilst their origin appears to be due to the use of cross beams and ties in roofs and walls they evidently became conventional at an early date. Their employment in walls is illustrated in the back wall of the Hall of Double Axes at Knossos.[1]



B. S. A. An.]

CRETAN INTAGLIO SEAL WITH A LION-GUARDED GODDESS

The survival *in situ* of this decorated façade, unique of its kind on the Grecian mainland, is an important link in the history of this early phase of art. The design of two animals placed symmetrically on either side of a central object occurs occasionally on Aegean seals and has obviously some symbolic or religious meaning. A still more significant fact is that similar reliefs are found carved on the front of rock sepulchres in Phrygia. In one instance, at Ayazin the design though more rudely carved is practically the same as that at Mycenae. Though most of these Phrygian designs are obviously of later date than that assigned to the Lion-gate, they are evidence of a religious tradition, which is probably older than the presumed colonization of Phrygia by European immigrants.[2] The appearance of the design at Mycenae, taken in con-

[1] See *ante*, p. 21. The small aperture in the wall indicates the place where a circular wooden cross-tie was inserted. The places of others in the same course have been filled up with plaster.

[2] Prof. Garstang says, "The symbolism of this design may be purely Phrygian, but the decorative conception of the twin guardian

nexion with the Cretan seals, with the additional fact that the double axe appears in the religious symbolism of both Crete and western Asia Minor, lends strong support to the theory that the general culture of the

ROCK-TOMB AT AYAZIN, PHRYGIA

From a drawing by A. C. Blunt. (Hellenic Society.)

Aegean was Asiatic in origin, though modified to some extent by Egyptian influences, and, so far as the mainland was concerned, by ideas and traditions of a somewhat less advanced northern civilization.[1]

lions is too freely found in Hittite art for us to doubt that it had been borrowed [by the Phrygians] from the older population."—"The Land of the Hittites," p. 60. Mr. Hall, on the other hand, seems inclined to the opinion that the "heraldically opposed figures" were derived by the Phrygians from Minoan art. See N. E., p. 476.

[1] More light will no doubt be thrown on this question when the remains of the Hittites, who appear to have dominated Asia Minor,

Equally important in the history of architecture in Greece are the subterranean *tholoi*, sometimes called beehive-tombs. This form of sepulchre appears to have been imported directly from Crete, for the same method of building a stone vault by successive circular courses gradually diminishing in diameter is found in a ruined tomb near Hagia Triada. It is almost certainly of the Early Minoan period and therefore some centuries earlier than the Mycenaean examples. Similar tombs have been found at Kumasi and Porti in the southern plain of central Crete. The tholoi of the mainland are, as might be expected, more elaborate and finished examples of the type. They appear to have been formed by making an open cutting, which is known as the *dromos*, in the side of a hill or slope, until it finally entered the ground at an artificially made vertical face. At the same time a perpendicular shaft was sunk from the surface to meet the horizontal excavation. At the point where they met a large domical chamber was excavated and lined by concentric courses of stone in the manner described above. The inner edges of the stone blocks in each course were chamfered off so that the whole formed a perfectly smooth and evenly curved surface, which in the case of the more important tombs appears to have been decorated with bronze ornaments placed symmetrically over the whole vault. In two cases the principal chamber is connected by an inner doorway with a rectangular side-chamber in which the actual interment took place. In these it may be inferred

c. 2000 B.C., have been further explored. Garstang (*op. cit.*, p. 313) has noted some similarity in neolithic pottery found at Sanje-Geuzi—one of the most eastern Hittite sites—and that of the Troad and Crete.

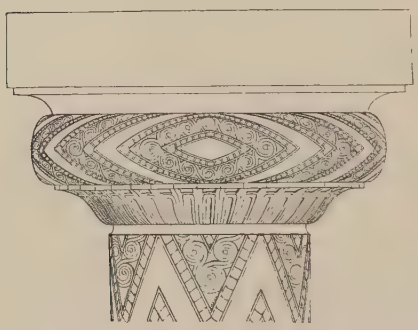
that the tholos was reserved for sepulchral or memorial rites.

By far the most important and best preserved of these tombs is that commonly called the Treasury of Atreus, about a quarter of a mile south of the Acropolis of Mycenae. The tholos and its side chamber are practically complete, and though all internal ornament has disappeared, the sombre solemnity of this vast sepulchral cavity, unlighted save through the door of entrance, cannot but strike and impress the spectator. Its diameter at the ground level is 48 feet and its height to the apex is the same. The approach to the tomb is itself imposing, for the dromos is a passage of 115 feet long and 30 feet wide with vertical sides which follow the upward slope of the ground to a height of 45 feet. The façade of the sepulchre is 33 feet high but the actual doorway measures 17 feet 9 inches from cill to lintel whilst the width diminishes upwards from 8 feet 9 inches to 8 feet 1 inch. Though it

REMAINS OF PILASTERS FROM THE TREASURY OF ATREUS

As set up in the British Museum.

has lost nearly all decorative detail, enough has been preserved to show that it was a highly ornate piece of architecture. The most important decorative members were two pilasters of semicircular section which flanked the doorway. Some fragments of these are now set up in the British Museum with the defective portions reconstructed.[1] They stood on small square bases which remain in situ. The capital consisted of a cushion-like torus on a cyma recta moulding, with a narrow scotia or neck channel between it and the shaft. Capital and shaft alike were covered with an incised surface pattern, in which chevrons and lozenges filled in with spirals predominated. In the architrave, or framing of the doorway, there are holes which indicate the positions of rows of bronze rosettes or other ornaments such as are found at a much later date. Above the lintel is an empty triangular space formerly filled by slabs of red porphyry incised with bands of spirals. The whole gives evidence of a refined and elaborate scheme of decoration.



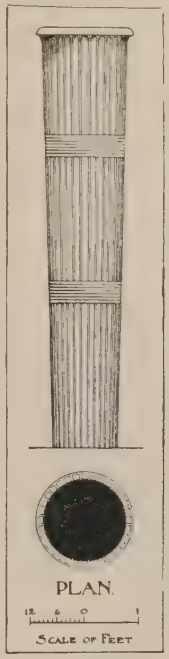
ORIGINAL FORM OF PILASTER CAPITAL FROM THE TREASURY OF ATREUS. (Puchstein.)

On the same ridge, but nearer to the acropolis, is another similar tomb, commonly known as that of

[1] These pilasters are generally misrepresented in books as being considerably enlarged upwards, but this peculiarity is hardly notice-

Clytemnestra. It is less well preserved, and has no side chamber, and gives less evidence of decorative features. But from fragments found near the doorway, it appears that there was a half column at each side, which had a vertical fluting like a Doric column showing thirteen channels to the semicylinder.

In both cases these pilasters have features which, if we may judge by vase-paintings, survived until the beginning of the classical age;[1] and though the remains of the contemporary palaces show that timber was in common use for free-standing columns, the occurrence of these elaborately worked half-columns in stone foreshadows the general adoption of the more permanent material.



COLUMN PROBABLY OF MYCENAEAN DATE AT ELEUSIS

(Simpson's "Architecture," vol. i.)

COLUMN ON AN EARLY VASE FROM GELA

(Ashm. Mus.)

There are the remains of a

able in the actual fragments. According to Prof. Durm, who appears to have taken much trouble to ascertain the facts, the difference in the diameters of the top and bottom is about $3\frac{1}{2}$ inches, which in a length of $19\frac{1}{2}$ feet is scarcely perceptible. See "Jahrb.d. Oest. Arch. Inst.," 1907, p. 50. Instead of a Minoan characteristic it seems possible to regard it as an attempt to correct fore-shortening.

At Eleusis there are two column-shafts apparently of early Mycenaean date, which have a more pronounced enlargement upwards. See illustration above.

[1] See illustration, p. 64.

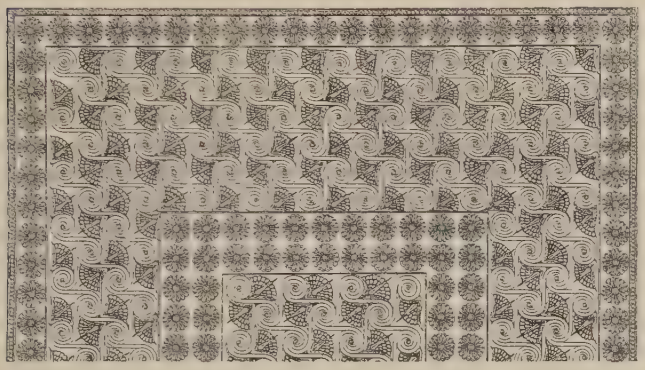
tholos near Orchomenos in Boeotia which is described by Pausanias under the name of the Treasury of Minyas.[1] From the terms in which he mentions it, there is no doubt that it was one of the most magnificent of these tombs. But its glory has long since departed, and it is now represented by little more than the lower courses of its circular stone lining and the skeleton of its doorway. Its dimensions, and the mode of its construction, were almost identical with those of the Treasury of

From the architrave and pediment of the Treasury of Atreus. (British Museum.)

Atreus, but the material was marble, now dark grey. The doorway was 17 feet high with slighty converging sides, but no signs of external decoration remain. An interior doorway communicated with a rectangular side chamber, about 12 feet by 9 in area, which had evidently been excavated by means of a shaft from above.

[1] "The Treasury of Minyas, than which there is no greater marvel either in Greece or elsewhere, is constructed as follows. It is made of stone, its form is circular, rising to a somewhat blunt top, and they say that the topmost stone is the keystone of the whole building." Paus., IX, xxxviii (tr. Frazer). It would seem from this that he supposed it to be constructed on the same principle as the domes which in his time were becoming familiar in the Roman world.

The lower end of this shaft was closed by four slabs of green schist 16 inches thick which formed a ceiling to the chamber. It was beautifully decorated with a shallow diaper pattern of linked spirals with a lotus-like corollae in the angles, derived directly or indirectly from an Egyptian design. This ceiling collapsed in recent times, and above it was found an empty space covered by slabs of stone evidently intended to take off



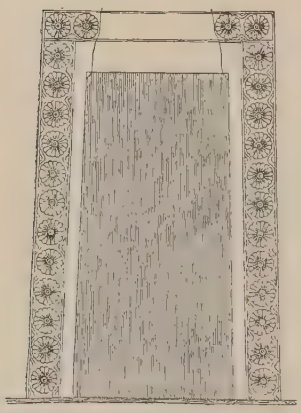
A PORTION OF THE CEILING AT ORCHOMENOS. (Durm.)

the pressure of the earth, with which the upper part of the shaft had been filled in.

Another tholos at Vaphio—the ancient Amyclae—near Sparta, is remarkable from the fact that it had escaped depredation in ancient times, and the valuable objects found within it explain the tradition that these tombs were royal treasuries. Of these objects the most interesting are two cups of fine gold with embossed scenes representing the catching and taming of wild bulls. The subject closely connects them with Crete, whether they

are regarded as importations or imitations by a local craftsman.

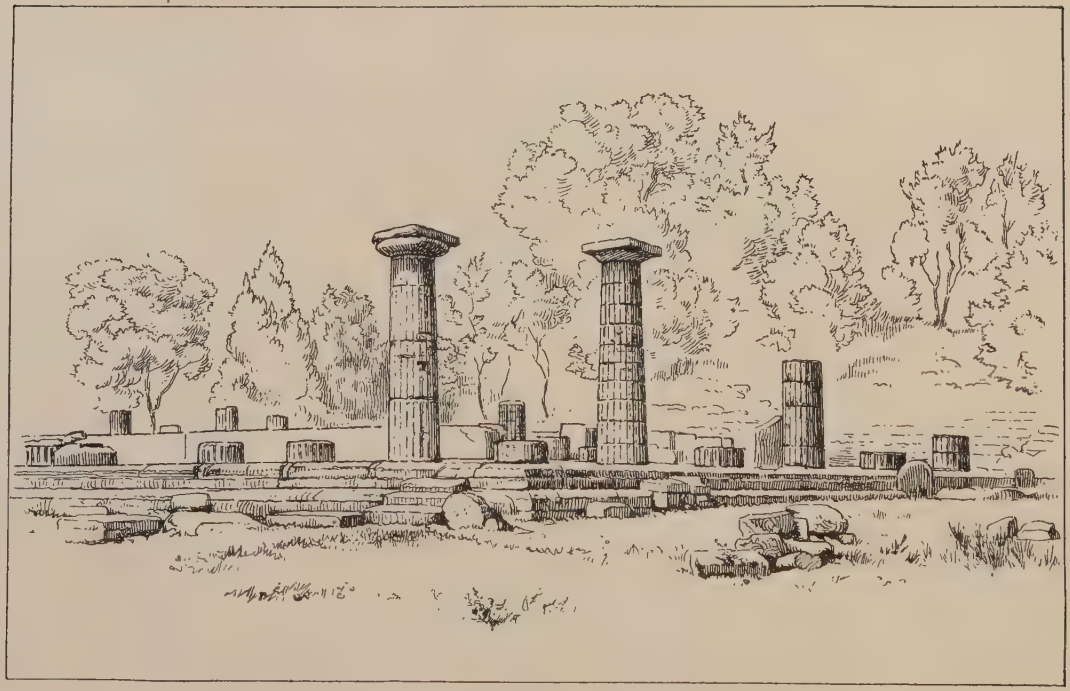
There are many less important tombs of the same era, in which the subterranean chamber is rectangular instead of circular. A noticeable feature of these is the form of the ceilings which consist of sloping planes imitating internally a ridged or hipped roof, and suggesting that gabled roofs were already in use for smaller buildings. The doors in some have been found built up and plastered, with an imitation of a doorway painted on the outside. These are interesting as showing a decorative treatment of the architrave which was probably general and which survived in classical times.



PAINTED FAÇADE OF A MYCENAEAN TOMB

In the Nat. Museum, Athens. (Ts. and M.)

Of the tholoi between twenty and thirty have been recorded in various parts of Greece. The fact that two occur as far north as Mount Ossa in Thessaly and one in the island of Kephallenia on the western coast, shows the wide extent of this Aegean culture, which in most cases may be attributed to direct Cretan colonization or trade, rather than to a secondary influence diffused from Argolis.



THE HERAION AT OLYMPIA FROM THE SOUTH-EAST
From a drawing made in 1914.

CHAPTER IV

THE DORIANS AS BUILDERS

THE walls and ground plans of these Mycenaean fortresses, and the structural and decorative features of the tholoi, are fairly representative of what remains of the actual architecture of the Greek mainland at this period of her history. Of the process of transition from this peculiar phase of art to the earliest forms of classical architecture there is little direct evidence, though germs of the later growth may be detected in the earlier types, and casual features of other branches of art may afford some indirect evidence of how, under new influences, the transformation was gradually effected.

If it were possible to say how the still obscure religious systems of the Cretans and Achaeans—to whom temples built with hands as distinct from palaces seem to have been unknown—developed into the well defined mythology of the Homeric poems, some additional light might be thrown on the process by which the megaron of the Mycenaean palace became the type of the Greek temple. So far as we know, the religious ideas which prevailed throughout the Aegean and western Asia Minor were based on the worship of a single mother-goddess, called Cybele by the Phrygians and by the Greeks Rhea. To this simple conception was added that of a son or consort, and this divine pair appear under different characters,

which can be identified in the mythology of various Asiatic races with Astarte, Baal, Melcarth, Moloch, Adonis, etc. By the Greeks they were transformed into Hera, Aphrodite, Artemis, Zeus, Apollo or Herakles. As the attributes and functions of divinities became more specialized, they were ultimately differentiated into the numerous personalities of the Greek Pantheon, some of whom owed their introduction to the mythology of the northern immigrants, whilst the Sacred College, if it may be so called, was considerably enlarged by an intermixture with the race of ordinary mortals.

Whilst the more universal and primitive mythology was rooted in the mystery of the great phenomena and functions of nature, and was expressed by symbols rather than by images of the divinities, it was mingled locally with daemonic features—belief in the sanctity of certain stones and trees—in the spirits of the woodland and the wild creatures that inhabit it.[1] It was natural that in early ages the worship of these unseen powers should take place in caves and groves and rocky recesses,—such as the Dictaean cave in Crete, the Dodonian grove in Epirus and the Hittite sanctuary at Iasily Kaya, near Boghaz Keui,[2] in Asia Minor—which some peculiar feature had indicated for the purpose. Apart from the small enclosures and domestic palace-sanctuaries which have been mentioned in connexion with Cretan architecture,

[1] Interesting details and illustrations of the whole subject will be found in Sir A. Evans' paper on "Mycenaean Tree and Pillar Cult," in "J. H. S.," vol. xxi.

[2] This sanctuary is very lucidly described in Frazer's "Adonis, Attis, and Osiris" (vol. i, pp. 128 *sq.*). Numerous illustrations and a plan will be found in Garstang's "The Land of the Hittites," pp. 211 *sq.*

it was probably only when special characters had been assigned to the numerous divinities, and the tendency to represent them in human form had begun to prevail, that the practice of constructing special habitations for them was generally adopted.

Probably the earliest extant example of this practice in a primitive form is the so-called grotto of Apollo in the island of Delos, which, as the reputed birthplace of the god became a centre of this cult. There is nothing to indicate the age of this structure, which consists of little more than a stone-built hut with a doorway at one end. The most noticeable features about it are, that it is covered by slabs of stone which slope from each side and meet so as to form a ridged roof, and that the further end from the door is not covered, but has an aperture for light, thus combining in primitive style a characteristic of the Cretan megaron with the later form of temple roof.

THE GROTTO OF APOLLO, DELOS. Drawn by J. Durm.

The chief centre of the cult of Apollo for the whole of the Greek world was at Delphi. There, according to a tradition repeated by Pausanias,[1] his first temple was a sort of hut, or "shanty" as Professor Frazer translates it, made of laurel boughs. Pausanias goes on to say that the third temple was made of brass, and compares it with that of Athene Chalkioikos at Sparta, which from the remains which have been recently excavated appears to

[1] Bk. X, v.

have been built of timber and lined with plates of brass.[1] Apparently the fourth temple at Delphi was the first one built of stone.

It seems evident, then, that the stone-built temple was evolved by a gradual process during the two or three dark centuries which elapsed between the first appearance of the Dorians in Peloponnesus and the dawn of written history, and that so far as the Greek world is concerned the art of constructing permanent buildings remained for a time in suspense.

Unquestionably much must have happened during this period of transition, the most important feature of which was the expansion of the population of Greece to the opposite coast of Asia Minor. This "Ionian" migration was no doubt a movement of the mixed races of Greece in successive waves, extending over a large part of the period in question: but the fact of their coming from a common home as strangers in a foreign land, and speaking a language which had already attained some uniformity, must have tended to unite them, and form that ethnic amalgam in which, under fresh local influences, a new phase of civilization and a new outgrowth of art arose.

It is probable that a Minoan culture, derived from Crete in the days of its predominance in the Aegean, was already established on the Lydian and Carian coasts of Asia Minor, as it had been at Troy.[2] But it must have come

[1] "B. S. A.," vol. xiii, p. 139.

[2] See Hogarth's "Ionia," p. 101. So far as Caria was concerned it was possibly indigenous. Sir C. Fellows noted at Mylesa the constant occurrence of the symbol of the "double axe." It is found also on coins as an attribute of Zeus. See "Asia Minor and Lycia" (1852), p. 277.

into contact with, and been modified by a still more primaeval civilization from the eastern hinterland:—by traditions of an old Chaldean culture percolating westward through Cappadocia and the great Hittite domains; and by the far reaching influence of Egypt transmitted through Syria and by sea-intercourse with Cyprus or Rhodes.[1]

Whatever the assimilative process may have been it is evident that the transition from wood to stone must have taken place concurrently in Greece and Ionia, and there are signs that in regard to some architectural forms Ionia must have taken the lead and reacted upon the art of the motherland. The terms Doric and Ionic as used in architecture are far from having a merely technical significance, for whilst the evidence of the origin and evolution of Doric is chiefly found in Greece itself and its western colonies, the sources of Ionic architecture appear to be, so far as decorative features are concerned, mainly Asiatic.

One of the most ancient monuments of Hellenic culture under Dorian influences is the sanctuary of Artemis Orthia at Sparta, the scene of those strenuous contests, by no means bloodless, and other drastic tests of endurance which were imposed by law upon Spartan youths. Under the Roman Empire a circular space in front of the temple was transformed into a theatre with graduated benches, from which the ceremonies and rites which still survived could be viewed.[2] A temple, the foundations of which, dating from the sixth century B.C. still exist, occupied a

[1] "Ionia," pp. 90, 92. Mr. Hogarth remarks that after the early twelfth century, B.C. (*i.e.*, in the XXth dynasty), there was apparently a cessation of direct influence between Egypt and Asia (p. 94).

[2] See "B. S. A.," vol. xii, p. 317.

segment of the circle on the west side,[1] and a large altar of still earlier date has been disinterred at the opposite side of the circular arena. On clearing out the foundations of the temple to the virgin soil, the excavators uncovered the footings of a primitive temple, which from the surrounding deposits must be assigned to the ninth, or even

[*B. S. A. An.*

FOUNDATIONS OF THE PRIMITIVE TEMPLE OF ARTEMIS ORTHIA, SPARTA

the tenth century B.C., and must therefore belong to one of the earliest structural temples of which any remains are extant. They consist of a line of rough stones, alternated at intervals with flat ones, and a few upright slabs,

[1] This sixth century temple was rebuilt on the old foundations probably in 178 B.C. "B. S. A.," xiii, p. 60. The excavators were the British School at Athens, and their reports will be found in vols. xii-xiv.

representing the side and end walls of a small rectangular temple with a cella or sanctuary about 3 feet 6 inches deep. The flat stones were apparently intended to support wooden posts, and from a deposit of red earth which is probably calcined clay, it may be inferred that the walls were carried up in crude brick with a timber framing, and that the building was destroyed by fire. A row of flat stones parallel to the side seem to have been the bases of poles or slender wooden columns ranged along the axis of the temple to support the roof. The form of the roof is doubtful, though the remains of a few tiles may indicate that some time before its destruction it was gabled. As the north side of the building has left no trace, the axial position of the columns is not certain, but as it would give a total width of about 15 feet, it agrees very well with the apparent length of 30 feet. To assume a triple-aisled nave would imply an area far exceeding that of the later building. Moreover, there is some evidence that a central row of supports was the earliest form of an internal colonnade, used even in the Later Minoan architecture,[1] It is not to be assumed that there was no alternative between a flat and a gabled roof. From much later vase-paintings, it appears that sometimes roofs had externally a flattened domical surface. This was probably the result of piling the clay or pisé of which they were made more thickly in the centre, in order to discharge rain-water, an expedient which would obviously increase the weight, and necessitate support, in the centre.

There is no evidence as to the front of this primitive Spartan temple. It is possible that it followed the type of a Mycenaean megaron, and showed in a somewhat

[1] See *ante*, pp. 17 and 19.

rude form, the two columns between the prolonged side-walls which remained the type for small temples or shrines, as well as for the cella of peripteral temples, throughout the Hellenic era. But on the whole it seems probable that it had no central doorway, and that in order to correspond with the axial colonnade it had one or three columns in the prostyle.

The precise form of the wooden columns used at this early stage of Dorian art can only be conjectured. It was probably based on the Mycenaean type illustrated by the

WELL-HOUSE. From the Vase of Klitias (VIth century).

pilasters of the two tholoi which retained some fragments of architectural decoration. That this type survived through the dark ages of the Dorian settlement may be inferred from pictures which occur on early vases. There may still be observed the tall and narrow shaft and the dilated cushion-like capital, which, whilst they seem to take us back to Crete on the one hand, have on the other some of the elements, but nothing of the carefully studied proportions, of the classical Doric. That these ceramic designs represent the monumental art of the time cannot be said, for in most cases they are later in date than existing remains which approximate more closely to the

classical type, but it is probable that they represent smaller shrines or aedicula which were still mostly of timber. In any case they give evidence that the old Mycenaean column survived as an architectural convention, and to that extent help to prove that some features of the old culture were not altogether obliterated by alien conquests and new dynasties.

Between a small and primitive temple, such as that of Artemis Orthia, and any of the larger structures which can be regarded as belonging definitely to the Hellenic period in its earlier or so-called archaic phase, there is a considerable hiatus which can only be filled with the aid of much conjecture.

There is, however, some interesting evidence as to the gradual prevalence of the typical temple-plan at the site of Thermon in Aetolia. The foundations of a temple of Apollo[1] show a long rectangle with a peristyle of fifteen columns at each side, and five at the north and south fronts.[2] The uneven number at each end is accounted for by the fact that the cella had a central row of columns of which ten were in the principal naos and two in a separate opisthodomos. The terra-cotta decorations of the entablature include metopes with painted figures, some of which appear to be work of the seventh or eighth century B.C.[3] In clearing these foundations indications of two older temples were found. The earliest—of which

[1] Excavated in 1898 by Dr. G. Soteriades. See "Ephemeris Archaiologike," 1900, and "Berl. Phil. Wochschft.," 1898, p. 1564; and illustrations in "Antike Denkmäler," vol. ii.

[2] In describing rectangular peristyles the columns of the angles are reckoned both in the frontal and lateral colonnades.

[3] See pp. 122-3, *post*. These are now in the National Museum at Athens.

only a small portion of the south end was within the later site—appears, from the remains of its foundations, to have consisted of a simple walled building without columns, the north end of which had a curved or apsidal outline. The south end was rectangular with a small antechamber. The plan recalls that of some of the primitive

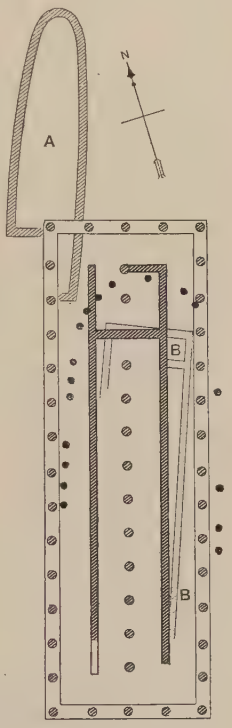
FOUNDATIONS OF THE EARLIEST TEMPLE AT THERMON
From "Ephemeris Archaiologike," 1900.

dwellings found at Orchomenos in Boeotia, and can hardly be later than the tenth century.

Immediately below the foundations of the latest building were discovered remains of yet another temple, probably of the ninth century B.C. In this case there was a peristyle, indicated by the stone bases which no doubt supported timber columns; but it is remarkable as being

almost elliptical in plan, whilst the enclosed cella was rectangular with a small pronaos. This curious and unique plan is apparently a compromise between a local or traditional use of curvilinear outlines for ordinary dwellings and the rectangular form of temple adopted by the Dorians.

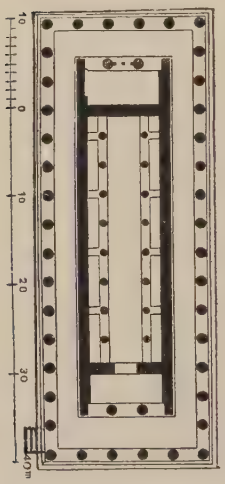
The oldest temple of which any substantial remains have been disinterred, and which, at the same time, throws light on the intermediate process of evolution, is the Temple of Hera at Olympia. It stood on the north side of the Altis or sacred enclosure, close to the lower slope of the hill of Kronos which is its boundary on that side. The older portions of the existing remains were formerly thought to belong to the seventh century B.C., but there are features which show that the site was occupied at a much earlier date, and that the building underwent at intervals alterations and repairs which continued down to the period of the Roman occupation without any definite reconstruction. The whole of the platform, which was approached by a small flight of steps on the south side, still exists with considerable portions or vestiges of the cella and the surrounding colonnades, showing the plan of a hexa-



GROUND PLANS AT THERMON

A. Primitive Building.
B B. Early temple with elliptical peristyle.

style peripteral temple about 167 feet long by 65 wide with sixteen columns (including those at the angles), along the sides. The cella, which was extraordinarily long in proportion to its width (viz., 131 × 34 feet), was divided into three portions—a pronaos with two columns in antis leading into the central sanctuary, and a chamber at the back (opisthodomos) similar in plan to the pronaos, but separated by a solid wall from the rest of the cella. The walls were based on three courses of ashlar about 2 feet 4 inches in height on the inner side, where the floor was a step higher than that of the peristyle, and were faced on the outside by vertical slabs giving them a total thickness of about 3 feet 11 inches. This plinth to a great extent still remains; and there are indications that the walls above it were carried up in crude bricks alternated with wooden longitudinal ties of timber, such as are found in many earlier buildings, from the second fortress of Troy to the Mycenaean palaces. The long central chamber of the cella had on each side a range of eight columns on a low stylobate about 3 feet from the side wall; and each alternate column, viz.: the second, fourth, sixth and eighth from the entrance, was originally connected with the side-wall by a cross-wall of similar construction. These were removed at some period of alteration but their position is clearly shown by their foundations, and by the ends of the stones, easily identified, which bonded



PLAN OF THE HERAION, OLYMPIA

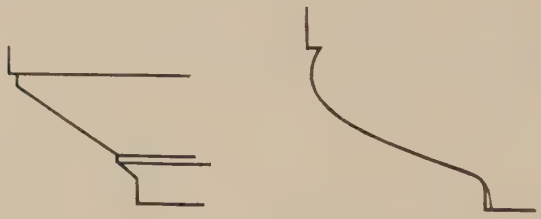
them into the main walls. It seems probable that these cross-walls originally supported the timbers on which a solid clay roof extending over the external peristyle was constructed. The slight indications left on the stylobate by the internal columns, show that they were circular in section without vertical channellings, and it is inferred by Dr. Dörpfeld, that they were originally of wood and replaced by stone. A few capitals of smaller dimensions found in the temple may have belonged to this colonnade, or possibly to an upper range of smaller columns such as is known to have existed in later buildings.[1] The doorway at the east end of the cella appears from indications in the wall, to have been framed with timbers strongly bolted into battens mortised into the adjacent stone work, and were capable of supporting two heavy doors. The fronts of the antae also appear to have been of timber, though a less heavy attachment is indicated. It is quite possible that all this woodwork was covered with plates of brass.

Of the forty-two columns which formed the peristyle, the numerous fragments that remain either in situ or scattered around, show a remarkable want of uniformity. Two of them adjacent to the south-east angle were reinstated in 1905 to their full height, and the eye is at once struck by the strongly marked upward diminution of that on the east front, and by the fact that it is built up of ten drums of varying thickness, whilst the other, on the south side, is composed of only four.[2] The capital of the latter consists

[1] See "Die Baudenkmäler von Olympia, bearbeitet von F. Adler, K. Boormann, W. Dörpfeld, etc.," vol. ii, p. 33. As to the upper range of columns, see *post*, p. 106.

[2] See illustration, p. 56. A detailed and interesting account of the re-erection of these two columns, by the German architect, G. Kawerau, appeared in "Ath. Mitth.," vol. xxx.

of a very wide saucerlike echinus, whilst that of the first mentioned has a straight-sided profile of ordinary dimensions, though the abacus above it is disproportionately large. From the other capitals, of which a large proportion were found, it is evident that there was a great diversity both in the diameter and contour of this member, some approximating to the rounded or cushion-like form of the Mycenaean capital, whilst others have the straight-sided section, characteristic of the latest type of Doric. The diameters of the columns vary between 3 feet



EXTREME VARIETIES OF CAPITAL, HERAION

4 inches and 4 feet 5 inches, and one column on the south side has only sixteen channellings instead of twenty like the others.[1] In some cases these are deeply cut, in others they are nearly plane surfaces. The material, which is the shell-conglomerate known as *poros*, also varies in texture, but in cases where the capitals are similar the stone is the same.[2] A few of the broken

[1] It is rather singular that this column appears to have had a slight entasis, whilst most of the others have perfectly straight slope upwards. The capital assigned to it is one of the widest. The whole colonnade is a piece of patchwork, sometimes carried out by unskilful hands.

[2] There is a difference in the manner in which the drums are joined. Some have dowel-holes, others are bedded with a rim and rebate. "Baudenkm. v. Olympia," p. 29.

columns appear to have been monoliths, and may be supposed—as also seems probable in the case of those which are similar in other ways—to have been erected at the same time.

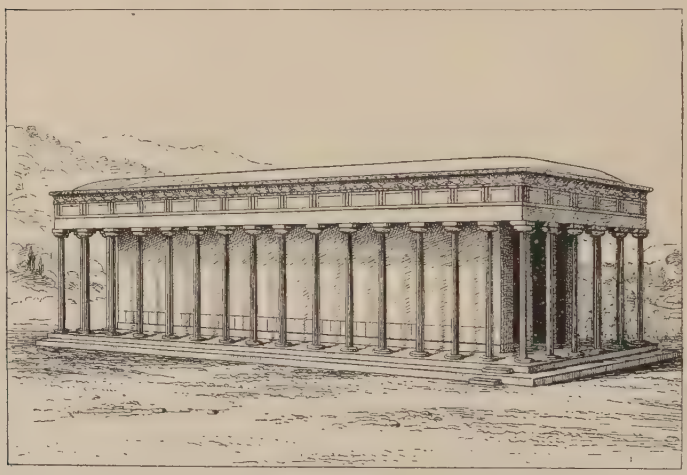
The inferences to be drawn from this general diversity combined with partial resemblance, is that the original peristyle of the temple—whatever may have been its date and form—was gradually rebuilt as it fell into decay, and that in some cases several columns were rebuilt at the same time. And since it is evident that the entablature, of which no stone fragments have been found, must have been of timber, it becomes almost certain that the original columns were—like those used in Minoan and Mycenaean buildings—fashioned from the trunks of trees. For had they been of stone it is impossible—apart from a complete rebuilding of the temple, which is precluded by the want of uniformity—that they should have required replacement in the eighth century B.C., seeing that the columns of that date have lasted to this day. Such is Dr. Dörpfeld's conclusion, which is corroborated by the often quoted statement of Pausanias[1] that one of the columns of the back chamber was in his day still of oak. As these columns were not exposed to the weather it is obvious that they would be the last to decay, and one may well have lasted to the second century A.D.

That the original columns were, as has been supposed,[2]

[1] V, xvi.

[2] See Anderson and Spiers, "Architecture of Greece and Rome," p. 29. They make the suggestion that the disappearance of the stone base of the Mycenaean column was due to the substitution of the stone shaft with a larger diameter, which would necessitate the removal of the old base. It may also be attributed to its being no longer required as a damp course.

of the Minoan type presumed to have been used at Knossos, with a considerable upward enlargement of circumference, cannot be taken for granted, seeing that the type had been considerably modified in the pilasters of the Mycenaean tholoi. But in any case, as soon as stone was used for complete columns this form would necessarily be abandoned, for considerations of stability would



SUGGESTED FORM OF THE FIRST TEMPLE OF HERA

dictate the lowering of the centre of gravity even when monoliths were used. Still more would it be necessary when the column was built up in sections, for the lowest drum would be likely to be displaced by settlement and split by the pressure of the larger ones above it.

Of the form of the entablature there is no positive evidence, but as the axial distances between the angle-columns of the peristyle and those next to them are less by 8 or 12 inches than the rest, it is inferred that the

frieze had a triglyph over each column, which if there is to be an even spacing of the triglyphs throughout necessitates a slight contraction of the intercolumniation at the angles.[1] These triglyphs appear in the earliest representations of Doric architecture, and are presumably inherited from Mycenaean buildings in which they would actually represent the ends of beams decorated, like the columns, with vertical incisions. The upper member or cornice was probably of the cavetto form familiar in Egyptian architecture, and, though no portions have been

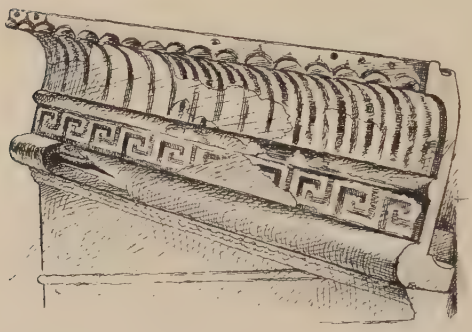
FRAGMENT OF PAINTED ARCHAIC TERRA-COTTA CORNICE OF THE CAVETTO FORM
In the Museum, Delphi.

found, it seems more than probable that it was composed of or cased with terra-cotta. Archaic mouldings of this form and material may be seen in museums.

It seems reasonable to suppose that not only the slender columns with their spreading capitals but also the general form of the entablature and roof represent a Mycenaean tradition ultimately derived through Crete from Egypt, and their extensive, if not universal use, may be inferred from the fragments of a cornice of uncertain date found at Lanuvium in Latium and now in the British Museum. Its resemblance to an Egyptian cornice both in form and decoration is obvious.

[1] On this point see *post*, pp. 96-98, *re* "Temple of Ceres."

There is abundant evidence of the use of terra-cotta at Olympia A fragment fromthe cornice of the Bouleuterion shows the cavetto moulding still in use in the classical age, whilst portions of the cornice and roof cresting of the Treasury of Gela[1] dating from about the sixth century B.C., show the remarkable elaboration in form and colour to which the application of this material had attained.



TERRA-COTTA CORNICE. From Lanuvium. Reconstructed from fragments. (Brit. Museum.)

So far as the Heraion is concerned, in addition to roof-tiles, part of a large terra-cotta antefix, which must have surmounted the apex of the pediment, is still to be seen in the museum. But if the original roof was flat or rounded, this must have been a later addition, and Dr. Dörpfeld supposes with probability, that the removal of the cross-walls in the cella was simultaneous with the substitution of a ridged and tiled roof. That

REMAINS OF THE ACROTERIUM In the Museum, Olympia.

[1] See *post*, p. 84.

there was even then a flat internal ceiling is evident from the statement of Pausanias, that the body of a man in heavy armour who had died of wounds was found between the ceiling and the roof.[1]

With regard to the date of the original temple, Pausanias records that it was built about eight years after Oxylus, who accompanied the Dorian invaders, became king of Elis.[2] If this tradition has any historical value, the building must have been one of the earliest erected under Dorian auspices, and would lead to the inference that however destructive the northern invaders may have been in their treatment of conquered cities, they were not without some degree of civilization and a religious cult of their own. This has indeed been inferred from the remains of pottery and carvings found at Sparta.[3] Dr. Dörpfeld, arguing from the proved durability of oaken columns, considers that the original peristyle may have lasted for some centuries before the first substitutions in stone were required in the seventh century, and consequently that the date indicated by Pausanias (c. 1096 B.C.) is not necessarily fabulous.[4] On the other hand the quality and regularity of the stone work of the cella is inconsistent with the theory that the invaders, who were presumably a timber-building race, could have erected the cella at so early a date. It seems more in accordance with both legend and archaeological indication to suppose that an alien dynasty introduced into Elis by the invaders brought in a new form of the cult of Zeus and Hera, with an elaboration of ritual and imagery hitherto unknown to the Achaeans; and that in providing a temple they

[1] Bk. V., xx.
[2] *Ibid.* V, xvi.
[3] See "B. S. A.," vols. xiii, xiv, and Hogarth's "Ionia," p. 34.
[4] "Baudenkm. v. Olympia," vol. ii, p. 36.

availed themselves of the art and skill of native builders who followed the established Mycenaean tradition and adapted the form of the palace megaron to the dwelling place of the deities.

A certain difficulty exists as to the origin of the chamber in the rear of the cella. This is a feature unknown in the Mycenaean megaron, though the light walls of Crete and an extra chamber at the back of the principal megaron at Hagia Triada[1] may have some analogy with it. But it is not unreasonable to suppose that in the adaptation of the Mycenaean megaron to the purposes of a temple an extra chamber would be required as a repository or treasury; and as the building stood apart from others, the symmetry of its plan would naturally suggest a western frontage similar to the principal entrance at the east end.[2]

Whilst any certainty as to the date of the cella of the Heraion is obviously unattainable, there is thus a strong probability that this temple may be regarded as the oldest known monument of Hellenic architecture and at the same time as a link with the earlier Achaian civilization.

But the further question remains as to how at so early a period the temple had already acquired the peripteral form which is associated with the most developed monuments of classical architecture. So far nothing of the

[1] This refers to the palace as it existed before the general overthrow of Cretan power, and not to those later substructures which have been rather hastily supposed to be the foundations of a temple or of a large megaron of the mainland type.

[2] Mr. J. T. Clarke supposes that the chamber was added simply as a concession to formal symmetry. See "Amer. Jl. of Arch." (classical), vol. i, p. 101.

kind has been met with in the Mycenaean palaces nor in any earlier phase of the art; though something of the same effect may have been produced by the veranda-like portico which enclosed the south east angle of the Hall of the Double Axes at Knossos. Nor can it be supposed that the external peristyle was derived, as may have been the case with the internal colonnade, from Egypt, for there it occurs only in a tentative form, and in small buildings such as the oldest part of Medinet Habu, or in the small temple, now destroyed, of Amenhetop III at Elephantine.[1] But when a temple was conceived as a separate building, standing—unlike the palace megaron—apart from others, and probably from the first within its own sacred enclosure or *temenos*, it does not seem improbable, considering the development of columnar architecture already attained, that the simple form of the megaron, known in later architecture as "distyle in antis," should be amplified and dignified by a surrounding colonnade and so become at once the prototype of the highest achievements of Hellenic art.

[1] See "Arch. of Anc. Egypt," p. 125.

THE TEMPLE AT CORINTH FROM THE SOUTH-WEST. From a drawing made in 1914.

CHAPTER V

EARLY DORIC TEMPLES

CHRONOLOGY

Principal Dorian Colonies in Sicily

Syracuse	...	founded B.C. 734
Selinus	...	„ „ 628
Acragas (Agrigentum)		„ „ 582

Approximate Dates of Doric Temples

Apollo (Syracuse)	before 600	Hercules (Agrigentum) ...	510
Zeus „	„ „	Zeus (Olympia)	480
Apollo (Corinth) ...	... *c.* 600	„ (Agrigentum) ...	480
C (Selinus) ...	... 575	Aphaia (Aegina)	470
D „	... 570	Athene (Assos)	470
"Basilica" (Paestum)	... 560	Parthenon	460
"Ceres" „	... 530	Theseion	450
F or R (Selinus) ...	... 530	Poseidon (Paestum) ...	440
H or T „ ...	... 530	„ (Sunium) ...	440
Apollo (Metapontum)	... 530		

THE Minoan and Mycenaean practice of using timber trunks for free-standing columns may be assumed to have been abandoned for all but small and light structures in the seventh century B.C. The site of the temple of Artemis Orthia affords no positive evidence, but the deep foundations of the second temple show that it was rebuilt

in a more substantial style and allow of the supposition that, like the third building on the same foundations, it was a distyle in antis constructed of stone throughout.[1]

The archaic temple at Corinth is probably the oldest on the Greek mainland, after the Heraion at Olympia, of which any portions remain standing. It has been identified with the temple of Apollo casually mentioned by Pausanias.[2] It is obvious that this was no patchwork structure but was designed and carried out in one process: proving that a complete and refined type in stone was already established. The columns are all limestone monoliths with shafts uniformly channelled in twenty grooves, and though their exceptional thickness in proportion to height[3] and marked upward diminution together with the dilated form of capital sufficiently indicate their archaic character, yet the profile of the echinus with its studied curve and the slight entasis of the shafts, show that the aesthetic perception and skill of the Greek artist had already attained a high level.[4] If it is, as Prof. Bury suggests,[5] a relic of the reign of Periander, its date may be about 600 B.C.

The seven columns which still stand erect comprise five out of the six which formed the western portico and two which came next to the south-west angle in the lateral

[1] See *ante*, p. 61. [2] Bk. II, iii.

[3] The height of the columns is slightly over four times the lower diameter. In the Parthenon, which may be taken as the perfect norm, the proportion is a little more than $5\frac{1}{2}$ to 1.

[4] Dr. Dörpfeld and others have detected a slight convex curvature in the stylobate. See a detailed account by Mr. B. Powell in the "Am. Jl. of Arch.," vol. ix, p. 56. Penrose (p. 28) also mentions it as very slight and occurring only on the front of the stylobate.

[5] "Hist. of Greece" (1913), p. 152.

colonnade.[1] Portions and traces of the others and of the foundations of the cella can be seen on the temple platform which still remains. They show that with the great advance in style there had been no material departure in plan from the Heraion at Olympia. Both are hexastyle, but at Corinth there were fifteen instead of

TEMPLE OF APOLLO AT CORINTH IN 1751. From a drawing by J. Stuart. (Stuart and Revett's "Antiquities," vol. iii.)

sixteen columns at the sides. The area of the platform is 178 feet by 68, at Olympia it is 165 feet by 72. The cella was similar in having an internal colonnade at each side, but it appears that there was a solid cross wall near the centre, dividing it into two chambers each with a vestibule and pronaos, as if the temple were ori-

[1] Old engravings show several more columns still erect. See Stuart and Revett's "Antiquities," and "Expédition Scientifique de la Morée," by A. Blouet, etc.

ginally dedicated to two deities. Of the entablature only a few blocks of the architrave remain but the taenia at the upper edge of some of them, with a few guttae, show that there was a frieze with triglyphs. It is probable that the cornice was cased with terra-cotta of which fragments were found in the neighbourhood.[1] The use of this material in entablatures lasted till far into the sixth century and is more abundantly illustrated in Sicily and Southern Italy, where Dr. Dörpfeld and other archaeologists made a special study of the subject.[2]

It is in this outlying portion of the Hellenic world that further evidence of the development of the Doric style must be sought. The Dorian settlers in Corinth established a colony at Syracuse in 734 B.C. Here are to be found remains of two temples which seem to belong to an early period of this occupation and are probably older, and certainly earlier in style than the temple at Corinth. One of these is situated towards the northern end of the island of Ortygia which is the nucleus of the ancient city. It is represented by a few much mutilated columns partially incorporated in the wall of a modern house. Enough remains to show that it was a peripteral hexastyle with seventeen columns[3] along the sides. The exceptional length of the lateral colonnades is due to the fact that the front portico had a double prostasis, *i.e.*, two rows of six columns. The spaces

[1] "Am. Jl. of Arch." (2nd S.), ix, p. 61.

[2] "Ueber die Verwendung von Terrakotten in Geison u. Dache griechischer Bauwerke, von W. Dörpfeld, F. Graeber, R. Borrmann, K. Siebold." Berlin, 1881.

[3] It was formerly said to have had nineteen lateral columns, but seventeen is the largest number found in a hexastyle. See K. and P., p. 62. The Basilica at Paestum has eighteen, but it is abnormal in having nine at the ends, and an axial colonnade.

between the columns in front are greater than at the sides, which are so closely placed that the intervals are less than the diameters of the columns; moreover the central intercolumniation opposite to the entrance of the cella is wider than the others. These differences of spacing sometimes occur in later buildings.

The details of the columns, which are monoliths, point to a very early date. The capitals are wide and bulbous in contour and approximate more nearly to the cushion-like Mycenaean capital than in any other of these archaic temples; the shafts have only sixteen shallow flutings, and the diameters of those on the east front are not uniform, varying from 5 feet 8 inches to 6 feet 8 inches. The character of the entablature and the plan of the cella are not determined. The temple which is sometimes referred to as that of Artemis is now known to have been dedicated to Apollo.[1]

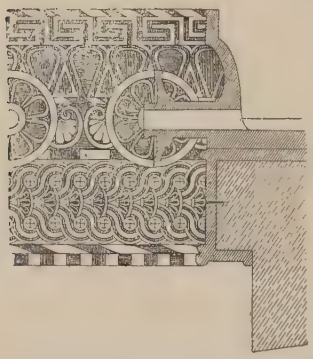
PROFILE OF CAPITAL. Syracuse

The other temple dedicated to Zeus Olympios is at some two miles distance on the west side of the great harbour of which Ortygia forms the eastern arm. This also was a peripteral hexastyle with seventeen columns at the sides, and it appears also to have had a double

[1] Anderson and Spiers give the date at 580-570 B.C., but others would date it earlier. Prof. Durm remarks (p. 207), "In this, which is certainly one of the earliest Doric temples in stone, and one which must be classed amongst the buildings which followed immediately on the timber or part-timber structures, the influence of the art of Egypt is unmistakably evident, especially in the adoption of the proportions and disposition of Egyptian columns." Durm, following Cavallari and Holm ("Topographia Arch. di Siracusa," 1883), describes it as the Artemision, but the true designation is given by K. and P., p. 56.

prostasis. Only two shafts are left and they are without capitals. They are monoliths with sixteen channellings and have no entasis, but a rather marked upward diminution. As in the other temple, the columns in front were more widely spaced than at the sides, but the central interval is not wider than the others at the end.

Portions of its terra-cotta frieze and roof tiles exist in the museum: the former resemble in form those from the Treasury of Gela at Olympia. It is probable that this temple is somewhat later than that at Ortygia.



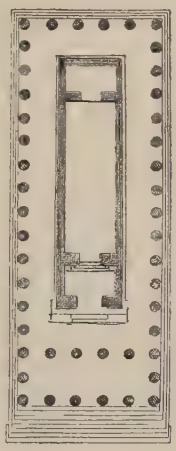
TERRA-COTTA CORNICE AND RAIN-SPOUTS. From the Treasury of Gela (Puchstein).

The next Doric temple in point of antiquity is one of the eight of which remains still exist at Selinunt on the south coast of Sicily. They mark the site of the Dorian colony of Selinus founded in 628 B.C. All the buildings are now overthrown, probably by earthquakes, but in some cases the columns seem to remain with their component parts in order as they fell. Some of the decorative portions are preserved in the museum at Palermo. Five of the temples stood on the high ground which is assumed to have been the acropolis; the other three on an alluvial plain below. As the dedications are unknown or uncertain the temples are designated by letters,[1] and that now in question,

[1] This system originated in the work "Arch. Antique de la Sicile," by Hittorff and Zanth. The five on the acropolis are

which is the largest of those on the acropolis, is known as C.

The date is conjectured to be about 575 B.C. and it may therefore be a half century later than those at Syracuse, but probably not much later than the temple at Corinth. It seems to have followed somewhat closely the Syracusan plan, being a hexastyle peripteros with seventeen lateral columns and a double prostasis. As in them, the cella was very long and narrow, and had no internal colonnades. But it differed from all hitherto mentioned in having no columns in antis in front of the pronaos. At the back of the cella there was no vestibule, the opisthodomos being entered from the interior. The columns of the peristyle are not uniform, most of them have only sixteen channellings, but five or six have twenty: and fourteen are monoliths whilst the rest are built up in drums of varying height. Its chief interest in regard to the evolution of the style lies in the construction of the entablature. From fragments found it is evident that it had already acquired the normal division of the developed Doric, viz., the architrave, frieze with triglyphs and the strongly projecting cornice. Moreover the metopes between the triglyphs were filled with sculptured panels known as A, B, C, D, O, and the other three as E, F, G, or alternatively as R, S, and T.



TEMPLE C
Selinus

PROFILE OF CAPITAL. Selinus, C

Perseus and Medusa.

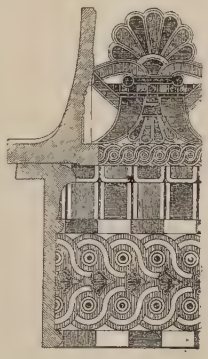
The Quadriga of Pelops.

Hercules and the Cercopes.

ARCHAIC METOPES FROM TEMPLE C, SELINUS. From "Sculptured Metopes," by W. Harris and S. Angell, London, 1826.

(Illustrations of some similar Metopes from an undetermined temple at Selinus are given by Perrot and Chipiez, t. viii, pp. 489-491.)

which though rude in design and execution were evidently direct forerunners of the more perfect work on the Parthenon.[1] But though the cornice was of stone the uppermost course was covered with an elaborately painted terra-cotta casing fastened to the upper surface by iron rivets, whilst on the top of this was attached a separate cresting of the same material with a row of richly moulded and painted antefixae which supported the roof tiles and concealed the ends of the semicylindrical joint-coverings.[2] It is noticeable that the cavetto moulding which is often associated with such terra-cotta casing has all but disappeared, and is represented by a narrow band of ogee section. The rest of the face is vertical, relieved only by narrow strings which take the form of a small torus, except in the case of the topmost which has a quadrantal section. Puchstein attaches special importance to this moulding which is not found in earlier work, as throwing some light on the development of the Doric echinus.[3]



TERRA-COTTA CORNICE OF SELINUS, C (Puchstein)

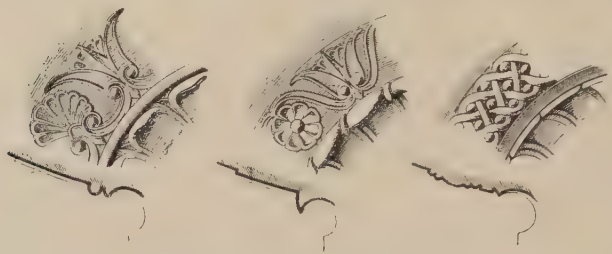
There is another temple (D), in the acropolis of nearly

[1] Another temple (R) in the lower town of Selinus had sculptured metopes rather more advanced in style (see p. 90).

[2] The tiles were often very large. Some of those found at Selinus measure about $4 \times 2\frac{1}{2}$ feet. They were not nailed down, but rested on those below by means of a rebate at the end. See Graeber's paper (p. 15 and Pl. II) in the work cited above (p. 82 *n*).

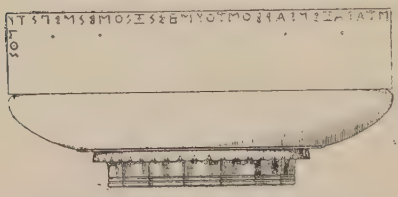
[3] See "Das Ionische Capitell," p. 53.

the same size and apparent date.[1] The capitals have the same dilated form but the columns have the peculiarity of a small scotia or hollow at the neck of the shaft im-



PATTERNS IN RELIEF ON THE ECHINUS OF THE COLUMNS OF THE BASILICA, PAESTUM. (Puchstein.)

mediately below the echinus. It appears to be a characteristic of the early form of the Doric column which obtained some local prevalence for it occurs at Paestum in the two temples usually known as the Basilica and the temple of Ceres, and elsewhere in South Italy.[2] It seems posible that it was an inheritance from the Mycenaean column, for a small hollow channel



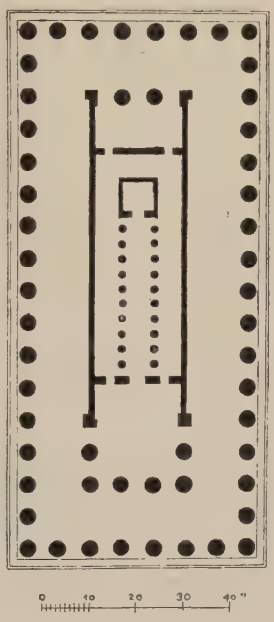
CAPITAL FROM THE TOMB OF XENVARES, CORFU. (Puchstein.)

[1] It is somewhat doubtful whether C or D is the older. An elaborate investigation by Prof. Allan Marquand, published in the "Am. Jl. of Arch." for 1894, on the proportions of temples as indicative of their date, still leaves the matter in doubt.

The foundations of C show that it was not the first temple on the site. "K. and P.," p. 96.

[2] *E.g.*, on a few Doric columns at Tarentum. See K. and P.

is found below the capital from the Treasury of Atreus.[1] Such an origin may account for the fact that these columns at Paestum have, immediately below the echinus, a corolla of curling petals to which there is an analogy in the Mycenaean capital. They have also a peculiar enrichment in the form of a band of lotus leaves, rosettes, plaits or plain rings on the surface of the echinus. These last decorations, which disappear and are replaced by simple fillets when the style is fully formed, were probably developed from painted ornament and indicate that there was a good deal of elaborate colour-decoration in the earliest form of the capital. That the corolla of leaves was a traditional feature is indicated by its occurrence on two probably still earlier examples elsewhere,



PLAN OF TEMPLE OF APOLLO, G or T. Selinus

S. Selinus

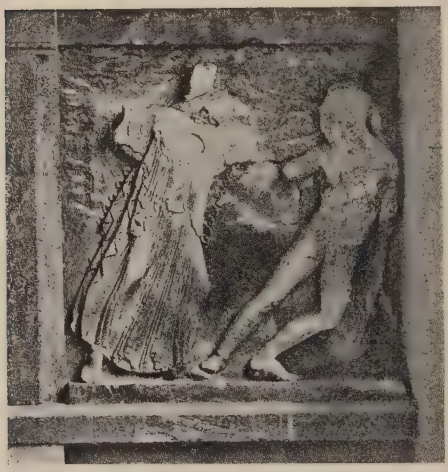
T. Selinus

PROFILES OF CAPITALS

p. 55, and a paper by Sir A. J. Evans in "J. H. S.," vol. vii. He remarks (p. 2) on the likeness of the columns to those at Ortygia, but points out that they have twenty-four flutings instead of sixteen, which may indicate a somewhat later date.

[1] See illustration, *ante*, p. 50.

Hera and Zeus



Athene and Enceladus (?)

METOPES FROM SELINUS R. (Russell Sturgis.)

namely, on the post-Mycenaean capital found at Tiryns,[1] and on another found in Corfu which is inscribed as part of the tomb of Xenvares (p. 88).

There are two other temples at Selinus, on the lower level, which are assigned to the middle of the sixth century B.C. That known as S or F is a hexastyle with fourteen lateral columns, and is remarkable for the extreme narrowness of the cella in proportion to its length. It had a double prostasis like C and resembles it also in having no columns in antis. The other temple

[1] See "Tiryns" by Schliemann, p. 293.

T or G, now known to have been dedicated to Apollo, was one of the largest of Doric temples, being over 360 feet in length. It was octostyle with seventeen lateral columns, and shows an apparent innovation in having had half columns on the external walls of the cella corresponding to the columns of the peristyle, thus forming an early example, if not the first, of the style known as pseudodipteral.[1] Both the pronaos and opisthodomos had two columns in antis, but in place of the double prostasis of C and S, the inner row of columns at the entrance is returned (to the depth of one column) on to the antae of the cella.[2] That the temple was never completed is evident from the fact that only two of the columns were channelled throughout their length, from which it appears that it was customary to reserve this detail until the columns were in position, the uppermost drum only being channelled before erection as a guide to the mason.[3] This is shown more clearly in the remains of the later temple at Segesta where the columns of the peristyle are still

[1] This feature is not apparent on the published plans. Harris and Angell say, "after a most minute and careful examination of the ruins, we ascertained most satisfactorily that the plan was *pseudo-dipteral*" (*op. cit.*, p. 29, note).

[2] The date of this temple is rather ambiguous, as some of the columns are more archaic than others. The fact that the inner prostasis resembles that of the temple of Ceres at Paestum, whilst the capitals of the antae are like those of the Basilica suggests a contemporaneous date.

[3] This seems to have remained the usual custom. Sir C. Fellows notes that the columns of the Temple of Jupiter Labranda, which was Corinthian, were only partly fluted. "Asia Minor" (1838), p. 261. Some of the columns of the temple of Apollo at Delos have small sections only at the top and bottom fluted. See "Exp. Scientif.," vol. iii, pl. 3.

THE PROSTASIS OF THE BASILICA AT PAESTUM

Showing the three columns or the pronaos in antis. (Russell Sturgis.)

standing. Their surfaces are smooth, and as there are no indications of the cella having been built, it may be inferred that it was not unusual to build the peristyle first, and that in this case the construction went no further.[1]

The remaining temple in the lower town at Selinus, known as E or R, appears to be of later date. It is remarkable for the advance in sculpture shown by a few carved metopes which have been recovered from the ruins (p. 90).

Another Sicilian temple of later date has some interest inasmuch as it shows an exceptional departure from the traditional plan. It is that of Zeus Olympios at Agrigentum, the erection of which seems to have occupied a great part of the fifth century B.C. Its area is the largest of any known Greek temple, the platform being 386 feet long by 173 wide, and in some respects it was an architectural anomaly. As the immense scale made it impracticable to provide stone beams long enough to bridge over the intercolumniations, the walls of the cella were brought out to the limits of the site,[2] and in place of a peristyle the device already adopted in T at Selinus was imitated. A series of semi-columns was attached or built into the walls thus giving it the form known as pseudoperipteral. The number of the lateral pilasters was fourteen, whilst the ends are peculiar in having seven. This uneven number must have entailed two doorways, and the immense size of the interior hall

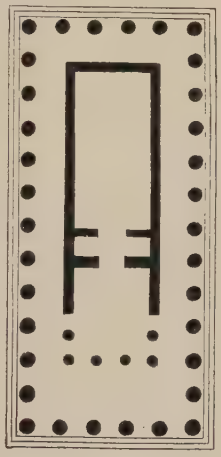
[1] It was probably stopped by the disasters which befell the Athenian expedition against Syracuse, and the impoverishment which the Segestans as their allies experienced. See Freeman's "Sicily," vol. iv, p. 455 (note by A. J. Evans). Durm says of this temple that it would not be easy to find one which offers more interesting material for the study of stone-masonry. A more thorough exploration would reveal much important information (Durm, p. 215, note).

[2] See "Choisy," i, p. 303.

THE TEMPLE OF CERES (so-called) AT PAESTUM FROM THE SOUTH-WEST

(Russell Sturgis.)

probably necessitated windows. The dimensions throughout are colossal, and amongst the remains were found fragments of gigantic human figures, or *telemones*, which by their attitude evidently served as consoles for the support of the roof-beams. Their position is however uncertain, for the ruins are very imperfect, having been used as a quarry when the mole of Girgenti was constructed.

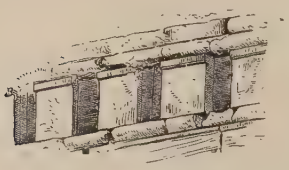


PLAN OF THE TEMPLE OF CERES

Closely allied to the older temples in Sicily are the two at Paestum already mentioned. In the opinion of Koldewey and Puchstein the so-called Basilica is the older, but it differs widely from the normal type in having nine columns at the ends, and eighteen at the sides, with a single row of eight along the axis of the cella. There are also, as such a plan seems to require, three columns in antis at each end of the cella. The capitals of the pilasters which terminate the antae are very peculiar in having a plain expanding cavetto surface without any carved decoration.

The small temple of Demeter or Ceres (so-called without any authority) is probably somewhat later, and approximated more nearly to what became the established form of the Doric order. As a hexastyle with thirteen lateral columns it has a normally proportioned area, and the several parts of the entablature which remain beneath the pediment at the west end, were carried out in stone without any application of terra-cotta. There are, however, certain peculiarities

in the building which seem to appertain to earlier phases of the style. The entrance to the cella had apparently no columns in antis, but had an inner line of four columns in front with one on each side returned on the anta of the side wall, as in the large temple T at Selinus. There are some indications that these inner columns had shallow bases, which has led to the supposition that the temple was built at a much later date under some Ionian influence. It seems more likely that they are vestiges of a primitive tradition. The columns of the peristyle are fairly complete: they are built up in drums of varying size, and have, like those of the Basilica, the peculiar scotia at the neck which has already been mentioned. The frieze above the lateral colonnades has completely disappeared, but from what remains at the ends it appears that it was unusually heavy, and is singular in the fact that the triglyphs, and not the metopes, were inserted in the stone beam, and having fallen out have left the metopes, which are plain, as rectangular projections on the surface. There is no taenia with guttae below the apertures, its place being occupied by a moulding with a cyma reversa section.[1] In one respect the temple of Ceres is said to be unique, namely in the fact that the intercolumniations adjacent to the angles are the same as the others, instead of being narrowed as usual



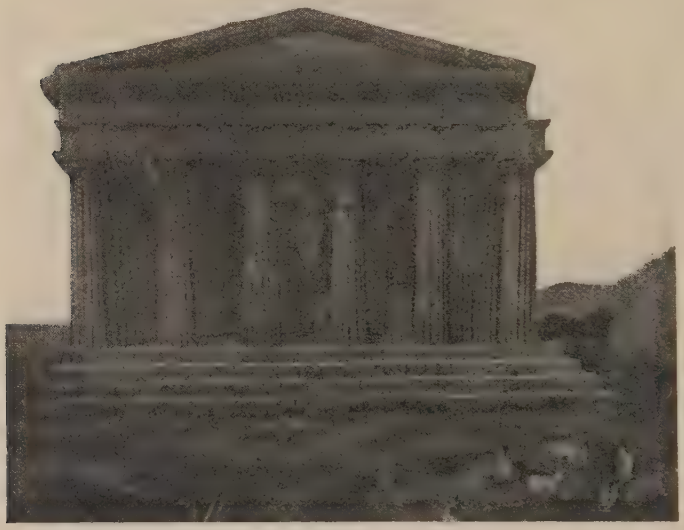
FRIEZE OF THE TEMPLE OF CERES. Showing the empty triglyph spaces. (J. Durm.)

PROFILE OF CAPITAL. Metapontum

[1] "K. and P.," p. 19.

REMAINS OF THE DORIC TEMPLE NEAR METAPONTUM. (Russell Sturgis.)

to adjust the angle columns to the equal spacing of the triglyphs and metopes. Though the corners of the entablature are now gone except where one has been conjecturally restored, it is inferred that the end triglyphs on each face were at the extremities, and that the adjacent metopes were consequently longer than the others.[1]



TEMPLE OF CONCORD, AGRIGENTUM

From a drawing by F. Gaertner. (Ansichten der mon. Siciliens, 1819.)

There are some interesting remains of a temple of Apollo at Metapontum on the Tarentine gulf of about the same date, but there are indications that the cornice had a casing of terra-cotta.[2] Apart from the peculiarities

[1] Cf. Anderson and Spiers, p. 37, note. [2] K. and P., p. 39.

which have been mentioned it seems that the Temple of Ceres is the earliest which exhibits the Doric order in its typical though still archaic form. The further development of the style consisted in the refinement of its parts assisted largely by the use of marble, and in the decorative application of sculpture rather than in any new structural form or feature.

The temple of Hercules at Agrigentum, supposed to be some twenty years later, was of stone throughout and shows the style fully established, though the entablature is still heavy. The Temple of Concord at the same place, though much later in date (*c.* 400 B.C.), may be mentioned as structurally interesting. It shows a doorway in the triangular wall above the entrance to the cella, giving access to the space between the roof and the inner ceiling. A stone staircase near the entrance led to this upper storey. The temple was preserved in the middle ages by being appropriated as a Christian church, and having been partially restored in 1788 is now one of the most complete relics of Greek antiquity.[1]

[1] Durm, p. 213-15.

TEMPLE OF APHAIA, AEGINA

From "Expedition scient. de la Morée."

CHAPTER VI

THE CULMINATION OF THE STYLE

THE further development of the Doric order is illustrated in the remains of the temple which is so finely conspicuous on the eastern heights of the island of Aegina.[1] Its dimensions are almost the same as those of the temple of Ceres, its area being 95 by 45 feet. It is also a hexastyle but with twelve instead of thirteen lateral columns. The proportions of the columns are however very different, for whereas the relation of height to diameter at Paestum is about four and a half, at Aegina the proportion is slighty over five and a half. More-

[1] It was dedicated to the goddess Aphaia, and not as formerly supposed to Athene.

over, the upward diminution of the shaft is much less marked.[1]

Some of the shafts are monoliths, and as this is the case with several early temples—at Corinth and Ortygia it seems that only monoliths were used—it may be concluded that there was an early preference for them whenever material of sufficient size was available. As the remains of two earlier temples were found on the site, it is possible that these monoliths may have belonged to one of them.[2] The material of the main portions of this building is sandstone, which was coated with a thin layer of stucco richly coloured, but its transitional character is shown by the use of marble for the sculpture of the pediments and some of the roof tiles. The sculpture, which is now in Munich, represented scenes from the Trojan war,[3] and it has been supposed that this representation of the legendary glories of Greece may have been designed as a commemoration of the recent repulse of the Persian invasion. If such is the case it fixes the date of the temple as a little later than 480 B.C., when the battle of Salamis was fought off the coast of Aegina. But the sculpture is somewhat formal in character and lacks the grace which is so conspicuous forty years later in the work of Pheidias and his school.

The cella was fronted at both ends by two columns in antis: the central chamber having both a pronaos and

[1] The height in both cases is slightly over 17 feet. At Paestum (Ceres) the diameter diminishes from 4 ft. 2 in. to 2 ft. 7 in., at Aegina from 3 ft. 3 in. to 2 ft. 5 in.

[2] A small propylaeum on the south-east which formed the entrance to the temenos had octagonal columns which may be relics of the first stone building.

[3] There are coloured casts of some of the figures in the British Museum.

an opisthodomos with which it was in communication. Two rows of five columns on each side of this central space probably supported the main timbers of the roof. The centre is supposed by some to have been hypaethral; others think that there were only apertures in the roof.

In this temple it may be said that the Doric style had attained completion if not full perfection. To this consummation the great temple of Zeus at Olympia, begun within the next few years, shows a still closer approximation. Though still a hexastyle with thirteen lateral columns, it is 210 feet long by 91 feet wide with columns a little over 34 feet high, being therefore on about double the scale of the temple of Aphaia. It was built of the local poros stone, coated as in other cases with a thin layer of stucco, which was afterwards coloured, but the roof tiles were entirely of marble, and were sufficiently translucent to light the interior. The sculpture of the pediments was probably the latest portion of the work and, like the ivory and gold statue of Zeus which formerly stood within the nave, belonged to the finest period of Greek art.

In the half century which followed the battle of Salamis, the Doric style rapidly attained its full development. The recovery of Athens from the disasters which accompanied the Persian invasion, the renewed confidence of the people, and the necessity of restoring many public buildings gave a stimulus to architecture and to art in general, which, under the rule of Pericles and in the hands of architects and sculptors of unrivalled genius, produced some of the masterpieces of Hellenic architecture. Progress was further stimulated by the Pan-Hellenic policy of Pericles, which if it failed on the mainland

brought the motherland into closer contact with her eastern colonies.[1] New architectural forms, developed under Asiatic influences, began not only to modify the mainland type but also, in combination with it, to produce buildings which, if they are somewhat lacking in the severe simplicity and impressiveness of the typical

THE PARTHENON FROM THE NORTH-WEST

Doric order, have more variety and grace, and give a wider scope to the imagination of the designer.

The remains of the ruined temple of Athene on the Acropolis were cleared away, buried, or used to repair the walls, and a large temple built entirely of Pentelic marble arose on an adjacent site. It was possibly designed in rivalry with the great temple of Zeus at Olympia, which was then nearly complete. Its platform is 28 feet longer and 10 feet wider, but though

[1] Bury, p. 366.

the columns of the peristyle are of exactly the same height, they have a smaller diameter and a narrower intercolumniation.[1] This was a necessary consequence of the adoption of an octostyle with seventeen lateral columns instead of the normal hexastyle with thirteen columns at the sides. As this departure from rule was

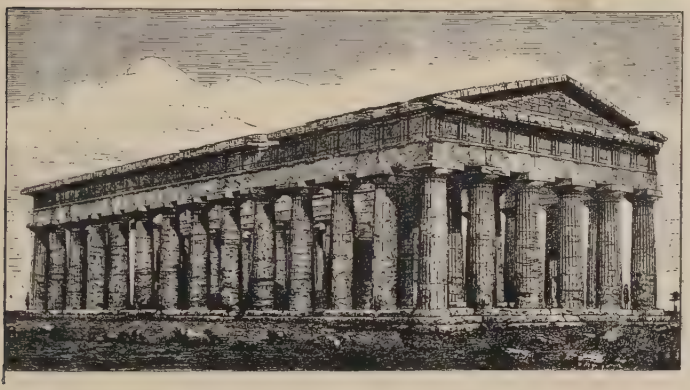
RESTORED WESTERN ELEVATION OF THE PARTHENON. (Statham.)

an innovation in Greece, though there is an earlier example in Sicily,[2] it seems possible that the architect was influenced by the great Ionic temple of Artemis at Ephesus, which was built as an octostyle *c.* 560 B.C. and was not replaced by the later temple till the middle of

[1] The intercolumniation in the temple of Zeus, in terms of the diameter, is 1.38; in the Parthenon it is 1.24. The diameters are 7 ft. 3 in. and 6 ft. 3 in. respectively.

[2] Viz., Temple T or G at Selinus. See *ante*, p. 89.

the fourth century B.C. However this may be, the elevation gained much in refinement ; and the employment of marble throughout, susceptible of a fineness of surface and an exactitude of jointing unattainable in stone, allowed of the application of minutiae of construction such as the slight curvature of the lines of the stylobate and entablature, which are generally ascribed to a subtle appreciation



THE TEMPLE OF POSEIDON, PAESTUM, *c.* 440 B.C. From Lübke.

on the part of the Greek architect of the optical effects of distance on line and form.

The Doric style must be regarded as having reached its culmination in the Parthenon, for though not wholly free from Ionian influence no other temple of the same or later date exhibits it with the same beauty of form and detail.

A curious contrast to it is found in one of the best preserved temples of this era, viz. that of Poseidon at Paestum. It is a hexastyle with fourteen lateral columns, in scale about three-quarters of that of the

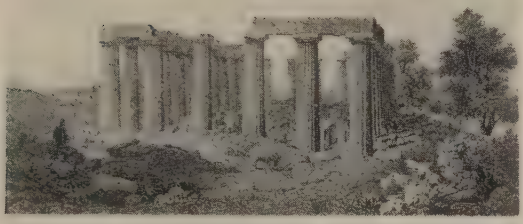
Parthenon. It is an impressive architectural monument and valuable as being the only one which has retained in situ a portion of the upper tiers of internal columns. Though its date is supposed to be between ten and twenty years later than the Parthenon it retains characteristics of much greater antiquity. The columns, which have a lower diameter of 6 feet 9 inches, are a little over four diameters in height, thus exceeding in heaviness of appearance those of the ancient temple of Corinth. The capitals though less dilated than those of the two neighbouring temples, and lacking their peculiar decorative features, are more rounded than others of the same date, and the shafts have the peculiarity, due perhaps to their great circumference, of having twenty-four channels instead of the twenty which had become almost universal.

The archaic character of this temple must be ascribed to its provincial situation: for the so-called Theseion[1] at Athens, which was built about the same time, has no vestiges of the immature style (*see frontispiece*). It is the best preserved of the larger monuments of Hellenic architecture, and was evidently a work of great beauty. It is a hexastyle with thirteen lateral columns on about half the scale of the Parthenon, and like it is built entirely of Pentelic marble. As the columns are more slender, viz.: five and a half diameters in height, it may be regarded as a somewhat later design, but it is known from an inscription to have been finished before 421 B.C. The sculpture on its pediments has disappeared, but there are remains of carved metopes and of a cella-frieze, which show that they were works of high quality. It appears, however, that these decorations were con-

[1] The actual dedication was to Hephaestus.

fined to the ends of the temple and to a small portion only of the sides adjacent to the east front.

Of much the same date is the temple of Poseidon on the Attic promontory of Sunium, to which the conspicuous position of the ruins has given the modern name



TEMPLE OF APOLLO AT BASSAE, NEAR PHIGALEIA
From "Expedition scient. de la Morée."

of Cape Colonna. It is a hexastyle of very nearly the same dimensions as the Theseion, but the increased slenderness of the columns, which are six diameters in height, suggests a rather later date.[1] Possibly this reduction of circumference may account for the fact that the number of channellings is sixteen instead of twenty; just as for the opposite reason they are increased at

[1] The diameter of the columns is 3 ft. 4 in. There is a full description with plan in "Ephemeris Archaiologike" for 1900.

Paestum to twenty-four. The columns are built up in drums of a rather coarse, but brilliantly white local marble, but the frieze was of Parian. The entablature, however, has almost completely disappeared, and the few sculptured stones which have been found are so much defaced that it is difficult to estimate the quality of the work.

The influence of Ionian art on that of the mother-country becomes obvious when the Ionic order is adopted

FROM THE ARCHITRAVE OF THE TEMPLE OF ATHENE, ASSOS
(Anderson and Spiers.)

in the interior of buildings which are externally Doric, such as the temple of Apollo at Bassae or the Propylaea of the Athenian Acropolis: or used for small buildings without any admixture of style, such as the temple on the Ilissus, now destroyed, or the Erechtheium, and the shrine of Nike Apteros on the Acropolis. The two styles are not reciprocal in their influence, for the Doric never had any firm foothold on the eastern shores of the Aegean.[1]

[1] Cases are found in which a Doric frieze is combined with Ionic columns, as in the Tombs of the Kings or the so-called tomb of

The earlier colonists had migrated before the Dorians had imposed their crude and peculiar culture on the Achaean inhabitants of Peloponnesus or on the earlier population of northern Greece, and hence it may be assumed that the gradual development of Ionian architecture was largely influenced by earlier structures and local methods which already prevailed there. These must have had an independent character in which traces of early oriental art may have been handed down, and in relation to which the Doric art of Greece remained an exotic. Thus it happens that at the time when this art culminated at Athens, there was only one temple on the Asiatic coast which owed its principal features to the Doric tradition. This is at Assos in the Troad where, about 470 B.C., a hexastyle peripteral temple was erected to Athene. Its dedication suggests that it was built under Attic influence and explains its Doric form. It was contemporary with the temple of Aphaia on Aegina, and is on much the same scale, but being about 5 feet longer it has thirteen columns instead of twelve at the sides. But it reflects a somewhat earlier phase, for the columns are 1 foot 8 inches shorter, and have only sixteen flutings instead of twenty. The two columns in antis have, however eighteen, a number which is almost unique.[1] Another singular feature is that the shafts are so disposed, that an arris and not a channel comes on the centre line of the front and back of the column. But the most striking

Absolom in Palestine, but these are late in date and may be regarded as Hellenistic in style. The monument of Hieron at Syracuse shows a somewhat similar mixture at an earlier date.

[1] In temple C at Selinus there is a similar difference, but there the columns of the prostasis have sixteen channels and the others eighteen.

peculiarity is that not only were the metopes decorated with carved figures of men, centaurs and sphinxes, but that the architrave also had a running band of sculpture, apparently illustrating the contest of Hercules and the Centaurs. The centre of the architrave at each end had carved reliefs of two winged sphinxes facing each other on the opposite sides of a small stele, a design which corroborates the evidence of oriental influence on this singular specimen of Ionian Doric.[1]

[1] A detailed study of this temple by Mr. J. T. Clarke, who made careful investigations at Assos in 1881, will be found in the Papers of the Archaeological Inst. of America (Classical Series, vol. i). He found many additional sculptured fragments supplementing those found at an earlier date which are now in the Louvre.

CHAPTER VII

RECAPITULATION—A THEORY OF DORIC

IF it may be assumed that the Heraion of Olympia represents not only the earliest Doric peripteral temple of which any remains exist, but also one of the earliest temples founded after the Dorian settlement in Peloponnesus, it seems possible to deduce from the indications which it affords, some theory as to the formation of the style.

So far as the cella is concerned, its relation to the Mycenaean megaron has already been discussed.[1] Buildings of similar form are not only known to have existed in the second fortress of Troy, but were probably familiar to the Dorian invaders, as well as to the more northern races.[2] It is only the two columns in antis which discriminate the Mycenaean megaron from its simpler prototype, and this special elaboration, adopted by the Dorians, formed the type which became permanent in later temple-architecture.

But a separate temple standing apart from the domestic buildings, and possibly enclosed from the first in a temenos of its own with an altar in front of it, was an

[1] See *ante*, pp. 76, 77.

[2] Evidence of the existence of timber buildings having the plan of the Mycenaean megaron has been found in northern Germany. See paper by C. Schuchhardt already referred to, p. 5, *ante*.

innovation unknown to the Achaeans and their Minoan predecessors. It was apparently a feature of the religious cult which the Dorians shared with other Indo-European races. It seems reasonable to suppose that the northern invaders, in introducing this new form of building, were struck by the frequent use of columns and pilasters in the Mycenaean palaces, and in order to give further dignity to their larger temples surrounded them with an external colonnade, similar in construction to those interior porticoes of which there is so much evidence at Tiryns, and in the earlier Cretan architecture from which they were derived.

Whilst the cella, like the megaron which it followed in plan, was constructed of rubble or crude brick bonded with timber ties, and based upon a few courses of ashlar, the columns also would be similar to those which were found in use: that is to say they were tree-trunks trimmed more or less accurately to a cylindrical or slighty conical form, relieved on the surface with vertical grooves, such as were to be seen on the pilasters of the "Clytemnestra" tholos at Mycenae. No doubt these would have the shallow stone base, and the cushion-like capital seen on the pilasters of the Treasury of Atreus, or in some of the Cretan frescoes which Sir A. Evans has imitated at Knossos. The general effect of such a portico may be seen on the representations of small buildings on vases which, though later in date, appear to reproduce an early and traditional type.

The entablature supported by these columns would necessarily be constructed of timber, showing the ends of the main cross-beams ornamented like the columns with vertical grooves which became conventionalized in the form of the Doric triglyphs. But the evidence from

early Doric buildings at Olympia, in Sicily and in South Italy, shows that the upper part of the entablature was protected from the weather by a terra-cotta casing, with a cavetto moulding in front which served as a dripstone, and sheltered the framing of the roof and the columns below. The skill in decorative faience to which both Minoan and Mycenaean artificers attained, and which the Dorians seemed to possess in some degree,[1] make it highly probable that ceramic decoration was used architecturally even in pre-Dorian days, and was rapidly developed, with the entablature, by the adoption of peripteral buildings. At first the mouldings must have been simple in section with formal patterns painted upon them, but the elaboration and richness to which both mouldings and polychromatic decoration attained is shown in the fragments which have been preserved. Colour remained always, in Greek eyes, an important element in architectural effect, even when timber and terra-cotta gave place to stone or marble. But as technical skill increased and finer material was employed the painted patterns were emphasized by low relief, which gradually became deeper and more elaborate, and thus, by a tendency common in all architectural development, the formal flat designs of early Aegean art became the germs of some of the most beautiful stone carving of far later days.

Of the form of the roofs in these earliest temples, it is impossible to speak definitely. There is evidence at Mycenae that the roofs of the megara were generally flat, and composed of compressed clay laid on small branches or rods of wood which were supported by cross-beams.[2] But there are also indications that a saddle-back roof

[1] See Hogarth's "Ionia," p. 34. [2] Ts. and M., p. 60.

with a triangular pediment at each end was not unknown.

This obvious method of counteracting the effects of weather must soon have become usual in a climate subject to frequent rainfalls. The rounded form of roof shown on some of the vase paintings, suggests that the clay covering was thickened in the middle, so as to give a surface on which moisture could not stand.[1] The extra weight thus imposed on the centre will explain the central row of internal columns which existed in some cases. As soon as the convenience of roof-tiles for the purpose of carrying off rain became obvious, the roof would naturally assume the form of two plane surfaces, and the substitution of a timber construction with rafters and purlins for the heavy pile of earth must have taken place almost simultaneously.

This early form of peripteral temple, if its main features have been correctly deduced, must have given its character to the transitional architecture of the tenth century, but during the next 300 years it is evident that these perishable structures consisting chiefly of timber, brick, and terracotta, were gradually replaced by more enduring ones of stone. The real *crux* in the history of the Doric order is the process by which the primitive slender columns of wood, with their wide cushion-like capitals, became transformed into the graceful combination of strength and simplicity which characterizes the perfected columns of the fifth century. The theory once accepted that Hellenic art was a spontaneous emanation of Greek genius is unsupported by any similar phenomenon in science or

[1] This appears to be the opinion of Prof. Durm (p. 140). On the use of pisé, see also Choisy, "Études épigraphiques," p. 70.

art, and in the absence of any other theory it is difficult to evade the conclusion that the ancient stone architecture of Egypt had a direct and prepondering influence in the process.

The far reaching effect of Egyptian art on the culture of the Aegean and western Asia is constantly perceptible. In the Minoan era it has been proved by the excavations in Crete and other islands, where it is not only shown in minor objects of art but is evident also in Cretan architecture and in decorative designs on vases and chests.[1] That it was continuous during the Mycenaean period is indicated by various details, such as the occurrence of Egyptian pottery in the shaft-graves, the carving in the stone slabs above them, the lotus pattern on the ceiling at Orchomenos. In some cases it may be supposed that this influence was transmitted indirectly or by intermediaries such as Phoenician traders, but in the case of the Greek mainland after the Dorian settlement it seems more probable that it was direct. In the history of Greek sculpture this is particularly evident. Apart from the miniature idols which were common throughout the Aegean, the earliest attempts at figure-sculpture were made in wood. This is apparent from the frequency with which Pausanias mentions wooden statues of the gods, and when at a later date stone began to be used the more primitive statues still show by their peculiar form their relation to figures carved from tree trunks or squared baulks of timber.[2] But even when the art was considerably advanced a peculiar rigidity of attitude re-

[1] See *ante*, pp. 28, 31.

[2] *E.g.*, the marble *xoanon* of Artemis from Delos dedicated to Nicandra (Nat. Museum, Athens). See also illustrations in P. and C., vol. viii, pp. 146-147; Colignon, etc.

mains, and there is such an obvious imitation of the well-known conventional pose of Egyptian figures—with the left foot slightly forward and the pendant arms pressed closely to the sides—that there can be no doubt as to their inspiration.[1]

If then the early Greek sculptor received his impulse and borrowed his manner from the great school of figure-sculpture which flourished in Egypt from the IVth to the XIIth dynasty and was in fact not wholly extinct in the ninth century B.C. it is unlikely that the Greek architect failed to be equally impressed by the solemn dignity of the columned hall of Ameni's tomb at Beni-Hasan, or the later consummation of this simple rock-hewn architecture conspicuous in Hatshepsut's pillared porticoes at Dēr-el-Bahri.[2] This fine monument of the great queen constructed in the sixteenth century was probably still complete if not intact in the tenth, and must have had more attraction for the pure taste and logical mind of the Greek artist than the ponderous erections of Rameses II and III—impressive chiefly by gigantic scale and overwhelming mass—which had by that time superseded the less barbaric work of the earlier dynasties.[3]

Thus if we assume that the timber columnar system of Crete and Argolis was originally inspired by that of

[1] P. and C., viii, p. 321. See also the statue of Apollo found at Delphi, in which the head as well as the pose suggest Egyptian influence (Museum, Delphi).

[2] See "Arch. of Anc. Egypt," pp. 89-98, and frontispiece.

[3] The argument adduced by Lübke (vol. I, pp. 145-6) that if the Greeks had been influenced by the architecture of Egypt they would naturally have adopted the "lotus" columns which were the prevailing type, shows both a want of appreciation of Greek genius and taste, and a somewhat superficial view of Egyptian art. It takes no account of the wide difference between the work of the

Egypt, we have both in architecture and sculpture the same peculiar process of stone translated into wood, and then developed or resuscitated in a higher plane of art as more perfect creations in stone and marble.[1]

That the intercourse between Greece and Egypt was frequent enough to account for a direct influence is not doubtful. The numerous allusions to Egypt by Homer proves that in the ninth century if not sooner the country was well known to Greek travellers and traders. In the seventh century Psamtek employed Greek mercenaries against the Assyrian invaders (670 B.C.) and regular intercourse between the Greeks of Ionia and Africa had become so great that a Greek colony rose at Cyrene, and a trading community was allowed to establish itself in the Delta and found the city of Naucratis. It may be assumed that long before this the marvellous architecture of Egypt had awakened the wonder and stimulated the imagination of the Greek world, where the multiplication of temples after the Dorian settlement must have given

earlier dynasties and that which came into vogue in the XIXth, and ignores the fact that the Ptolemaic buildings which now constitute so large a proportion of the architecture of ancient Egypt had not, at the date in question, displaced many of the earlier type.

[1] This alternation from stone to timber and back again to stone is found in mediaeval architecture. When the arcades of romanesque buildings were imitated in more primitive structures of wood, the arch-heads were evidently crudely represented by two straight pieces of timber meeting in a point. But when builders began to substitute stone for wood they reproduced these straight-sided "arches" in stone, a process illustrated in the tower of Earls Barton (Northants), or the gateway at Lorsch on the Rhine, to mention only two of the most familiar examples. This accounts for all the "triangular"-headed doors and windows which are characteristic of what E. A. Freeman called the "primitive English romanesque."

rise to a school of temple-builders. That they were thus led to substitute more massive stone pillars for the slender Mycenaean tree-trunks is more than a mere assumption. Octagonal stone columns such as may be seen in the rock-hewn tombs on the Nile occur on ancient sites. Amongst the ruins of the ancient Troezen on the north-east coast of Argolis are some eight-sided drums of a dark stone, like basalt, with a marked diminution upwards, which may be the remains of a temple of Apollo Thearios mentioned by Pausanias as the oldest sanctuary he knew.[1] At Limni near Marathonesi on the Laconian gulf are similar fragments of octagonal marble columns which may have belonged to a temple of Artemis[2] and on the island of Aegina the propylaeum of the temple of Aphaia, which is probably contemporaneous with one of the earlier temples, had octagonal columns. Nor is it only in such columns that Egyptian influence may be detected. Pausanias mentions a building like a pyramid, on the road between Argos and Epidaurus, supposed to be the tomb and monument of those slain in a battle which took place on the spot. About four miles to the south of Argos are the remains of the Pyramid of Kenchraea, constructed of rough stone blocks, in some cases poly-

[1] Pausanias, II, xxxi. They are described in Gell's "Itinerary of Greece" (Argolis), 1810, p. 121. The diminution of the perimeter which is 7 ft. 11 in. at the base is as much as 4 in. in a section of 3 ft. At Calauria in the island of Poros opposite Troezen, E. Dodwell mentions having seen the foundations of some pillars, 2 ft. 9 in. square, in the cella of the temple of Poseidon, which were probably remains of the oldest temple. See "Tour through Greece," vol. ii, p. 277.

[2] See Pausanias, III, ii, and IV, xxxi. They appear to be the remains described by Dr. Ludwig Ross, at a place called Volimnos. See "Reisen im Peloponnes," Berlin, 1841, pp. 4-7.

gonal, of which only the quoin-stones are trimmed.[1] Remains of another pyramid exist at the village of Ligourio near where the roads to Epidauros from Argos and Nauplia join.[2]

Such examples, few though they are at the present day, tend to show that in the obscure centuries which followed the Dorian invasion the stone architecture of Egypt must have arrested the attention of Greek builders. It is therefore reasonable to suppose that in the general substitution of stone for timber, the purer and less barbaric type of Egyptian columniation had a direct and decisive effect on the evolution of the Doric column.

The process here assumed is not precisely what is meant by architectural tradition, and in that sense the objection some have made to the term proto-Doric as applied to the columns of Beni-Hasan may be justified. The gradual development and concatenation of constructive methods and of decorative motives, analogous to organic evolution, which are essential to a continuous and vital tradition in architecture, must in the case of Egypt and Greece be traced elsewhere, namely, in the columnar system of Minoan and Mycenaean buildings, in their frescoed walls and in various decorative details which are best illustrated in minor works of art. All this formative influence was, however, greatly modified

[1] Pausanias, II, xxiv, mentions this monument as a tomb and not as a pyramid; it is not a simple rectangle in plan, as part of the east side, where the entrance was, is slightly set back. There is also some doubt as to whether it was ever carried up to an apex. A sketch and plan are given in "Expédition de la Morée," Pl. 55.

[2] See Dr. Frazer's note on Pausanias, II, xxv (vol. iii, p. 233). All these structures are mentioned by Ross, who infers from them the relations between Argolis and Egypt.

by the original genius of the Mediterranean race, and to some extent by a widely different religious cult of Asiatic origin; and, in the case of the Greek mainland by the infiltration of other influences from the north shown in a form of fortified palace and isolated megaron.

This view, however, does not preclude the exceptional accession of a later and more direct influence from Egypt, which is the more remarkable inasmuch as it had ceased to be effective in its own country.[1]

But the various communities which after the Dorian invasion formed the population of Greece, and ultimately became more or less unified as the Hellenic race, comprised a large element endowed by nature with an extraordinary appreciation of beauty in form and line—artists who, like their Cretan forerunners, availed themselves of foreign ideas only to transmute them to something better. This is shown especially in the work of the architect and sculptor, and is sufficient to account for the differences between the Egyptian and the Doric polygonal columns. In adapting to their own temples the general proportions and shape of the shaft the Greek builders discarded the base, and adjusted their own capital—a member which had remained undeveloped in the Egyptian rock-architecture—to the new form of column. For whilst the diameter of the stone shaft was so much enlarged it was obviously needless to retain either the

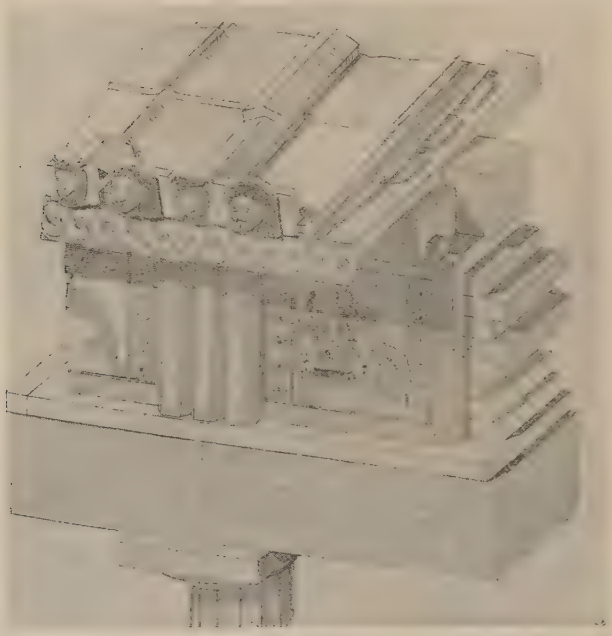
[1] It seems to have come direct to Peloponnesus through Argolis, where the port of Nauplia afforded the most convenient access. Prof. Frazer points out (Pausanias, vol. iii, p. 213) that all the pyramids in Greece, with one exception (in South Laconia), are found in Argolis, and much the same may be said for the octagonal columns.

base or the heavy cushion-like capital which were required to give adequate bearing surfaces to the slender wooden columns and to keep them from decay. Thus whilst the base disappeared at once, the capital by successive experiments was refined in profile and reduced in diameter until it attained that appropriate and satisfactory relation to the whole column which is shown in the most perfect examples of the order.

How far removed the Greek architect was from being a mere copyist is also shown in his treatment of the entablature. The fascia or cornice with a cavetto moulding which had furnished a suitable and elegant parapet to the battering walls and flat stone roof of the Egyptian pylon, and which had perhaps been adapted in terra-cotta to the timber framing of Cretan and Mycenaean porticoes, was no longer applicable to the carpentry of a ridged and tiled roof. The universal adoption of such roofs was no doubt due to climatic conditions, and the ends of the horizontal beams and the projecting eaves formed by the sloping rafters, must have become characteristic features of the side walls or of the lateral colonnades of the numerous temples that arose. So when a stone architrave and frieze took the place of the old timber framing, the Greek architect, without attempting an exact imitation of the discarded woodwork, formalized its features, and adapted them as decorative material for his stone entablature. That it was a decorative convention and not a literal and unimaginative imitation of timber construction, as various writers have suggested by diagrams,[1] is evident from the fact that in one of the oldest

[1] See Perrot and Chipiez, vol. vi, ch. 8, and Choisy, vol. i, pp. 280, 285. Though there are instances of the actual copying of woodwork in stone as in the Lycian tombs, in the primitive English romanesque

entablatures constructed entirely of stone—that of the temple of Ceres at Paestum—the taenia and guttae below



RESTORATION OF THE ENTABLATURE AT THERMON

Showing the terra-cotta metopes, antefixae and tiling.
From "Antike Denkmaeler," vol. ii.

the triglyphs, which are supposed to represent a wooden fillet and its attachment, were wanting, their place being

(see note, p. 117, *ante*), or in some of the early architecture of India (see Choisy, vol. i, p. 153), the assumed complete evolution of the Doric order in timber before stone was used, as suggested by these diagrams, has no evidence to support it.

occupied by a simple moulding.[1] The continued use of terra-cotta casing, even when the entablature was otherwise of stone, also shows that there was a considerable hiatus between the period of timber eaves and that of the typical stone cornice.

It was probably the skill of early Greek potters, inherited from their Aegean predecessors, which had not only prompted the original use of terra-cotta in this form, but had also prolonged it when it was no longer required as a protection on a stone entablature. But the expedient of coating the coarse stone, which was often used, with a smooth surface of stucco or cement which retained colour, led to the abandonment of the ceramic casing and ultimately to the substitution of finer stone or marble.

Nor was it only in decorative mouldings and geometric patterns that the application of terra-cotta preceded sculpture. The painted metopes of the temple at Thermon in Aetolia, which was one of that early type in which the roof was supported internally by a central row of columns, have already been mentioned (p. 55); and though their date is uncertain it was probably anterior to the rudely sculptured metopes at Selinus which are assigned to the earlier half of the sixth century B.C.[2]

That a simultaneous process of transition applies to the pediments, where sculpture forms so important a feature in the fully developed style is not, however, to be

[1] See *ante*, p. 96.

[2] The terra-cotta decorations at Thermon consisted not only of the metope-plaques, but comprise also coloured male and female heads which are supposed to have been arranged round the entablature as antefixae and waterspouts. Their style seems to agree with the archaic sculptures found in the Athenian acropolis, but some of the metopes are supposed to be older.

inferred. This decorative idea appears to have been derived from a custom, which is illustrated especially in the rock-hewn architecture of Phrygia, of placing figures of religious significance in the pediments of tombs. The tympanum of the Lion-Gate at Mycenae proves its early introduction into Greece; and the archaic remains excavated in the Acropolis of Athens show that an architectural convention had already become established before the Persian war.[1] These rude and highly-coloured sculptures in coarse Poros stone may possibly be somewhat earlier than the sixth century B.C.; but the rapid development of this culminating feature of the Doric temple—as shown in those of Aphaia on Aegina, of Zeus at Olympia, and in the Parthenon,—forms a separate study associated rather with the history of sculpture than with the earlier phases of the architecture to which it lends a crowning grace.

[1] See P. & C., vol. viii, p. 533, and Sir A. J. Evans' paper in J. H. S., vol. xxxii, especially p. 286.

CHAPTER VIII

IONIAN ART: ASIATIC INFLUENCES

IF the origins of the Doric style are obscured by the disappearance of the earliest buildings, the history of Ionian architecture is still further complicated by the vast field over which oriental culture ranged, and by the sporadic forms in which it permeated Asia Minor and came into contact with European influences.

The mutual chronological relation of the Egyptian and Chaldean civilizations is still ambiguous and it is only lately that any important evidence of a neolithic culture in Mesopotamia has been brought to light.[1]

There are later remains of brick buildings and of ancient cemeteries, of sculptured figures and inscribed stones, all of doubtful date, which bear witness to the existence in Mesopotamia of prehistoric kingdoms, the origin of which is still open to discussion.[2] But in the third millenium the chronology becomes more definite, and by

[1] *Viz.*, in excavations at Abu Sharain (Eridu) and El-Obeid, within a few miles of "Ur of the Chaldees," undertaken at the instance of the British Museum, by Capt. R. Campbell Thompson and Mr. H. R. Hall, and not yet published. Previous excavations at Nippur and Tello seem to illustrate at the earliest a Bronze Age civilization.

[2] The latest efforts to disentangle the complicated records of the early kings will be found in E. Meyer's "Gesch. des Alterthums," vol. i (3rd ed., 1913), and H. R. Hall's "Anc. Hist. of the Near East."

the year 2200 B.C. there had arisen a powerful Semitic kingdom with its capital at Babylon on the Euphrates, of which abundant evidence has survived in the shape of inscribed stones and clay tablets consisting to a great extent of legal documents, and testifying to a high level of social life and culture under the great king Khammurabi and his dynasty.

The civilization of which Babylon was for a time the centre was carried northward by migrations of the population, and at about 1700 B.C. the kingdom of Assyria was established with its chief cities at Assur and Caleh on the Tigris. At a much later date Nineveh, further to the north, became its far-famed capital.

But before this powerful and warlike state rose to the ascendancy in arms and science which it afterwards attained, the first Babylonian dynasty had fallen beneath an attack by the Hittites, a more northern race, whose historical importance has only recently been recognized. During the present century exploration in the centre and south-east of Asia Minor and the north of Syria has brought to light unmistakable evidence that for about eight hundred years (2000-1200 B.C.) these Hittites or Hatti (Khatti), as they are alternatively called, constituted a powerful empire, or association of states, which extended its influence from the Euphrates to the Aegean sea-board.[1] At about 1400 B.C. their capital was at a spot now known as Boghaz-Keui (the ancient Pteria) in Cappadocia, and here the remains of two palaces have been brought to light. Though little is left beyond foundations and low walls, there is enough to show that, unlike the buildings of Babylonia and Assyria, they were largely

[1] See Garstang's "The Land of the Hittites," and Hall's "N. E.," ch. viii.

constructed of stone, and that their builders were also skilled in the art of sculpture. Their artistic capacity is evident at a later period when, their military ascendancy having passed away, they appear still to have formed a prosperous community. The later of the two palaces at Boghaz-Keui, a second capital at Karchemish on the upper Euphrates, and other towns and monuments which have been excavated in Cilicia show continuous architectural activity; and with many other sites in Northern Syria still unexplored give evidence of a civilization which must have been flourishing between 1000 and 750 B.C. Shortly after this date Karchemish was destroyed by the Assyrians, and the Hittites ceased to have any political importance.

The period during which these three great empires of western Asia were successively in the ascendant, includes that in which Egypt under the XVIIIth and XIXth dynasties attained its greatest political power and influence. That there was much intercourse between Egypt and the Asiatic kingdoms is proved by documentary evidence, and it might in any case be assumed that the peculiar and impressive art of Egypt must have had some influence on its less developed Asiatic neighbours. There is some evidence that this was the case; and though its ultimate influence on Ionian art is less obvious than it is on that of Greece itself, it forms an element in that general culture in which the Hellenic art of Western Asia arose.[1]

But there are also influences from the west to be taken into account. The Phrygians, who appear to have been

[1] The reputed glories of Babylon as rebuilt by Nebuchadrezzar the Great in the sixth century, B.C., have been so thoroughly obliterated by time and the alternate ravages and neglect of later races, that it is difficult to reconstruct them in imagination. All that

first heard of as invaders of Hittite territory about 1200 B.C., are generally supposed to have been immigrants from south-eastern Europe. The special form of design which became conventional on the later tombs of Phrygia seems to indicate that they brought with them a religious cult which had some affinity to that which prevailed in the Aegean.[1] That the Minoan culture had also a direct influence on the Asiatic coast, as it undoubtedly had on Cyprus, is also more than probable, though distinct evidence of it is still very scanty. It was in a soil thus compounded of various elements that the Hellenic art of Ionia germinated and developed concurrently with that of Dorian Greece.[2]

remains seems to indicate that they had little effect on the contemporary art of Ionia; though it is conceivable that they may have had some influence on the Hellenistic and Roman architecture of a later date, as found at Pergamon, Baalbek, or Palmyra.

[1] See *ante*, p. 46.

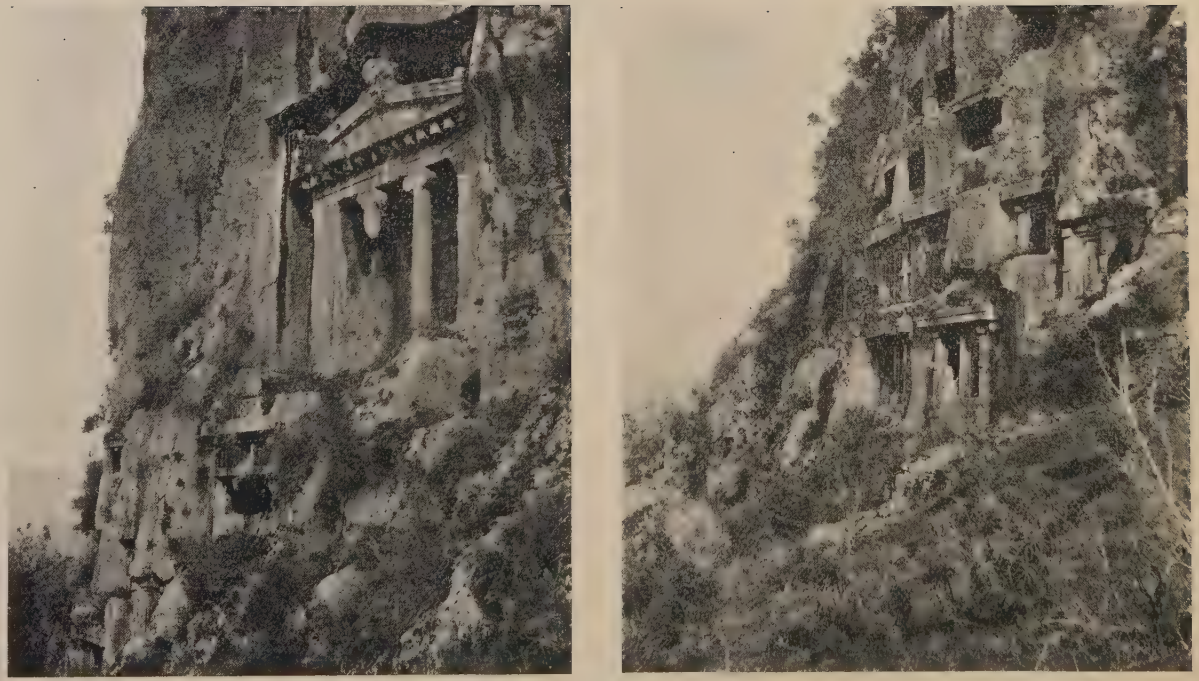
[2] See *ante*, p. 60, and "Ionia," p. 103.

CHAPTER IX

PRE-IONIAN ARCHITECTURE

THE first tentative efforts in architecture of the Greek colonists in Asia have naturally perished and left no trace; and such early monuments as still exist near the coast must be assigned to a date anterior to the Ionian immigration. Of these one of the most noted is the so-called Tomb of Tantalus on the north side of the Gulf of Smyrna. It consisted of a circular podium about 200 feet in diameter, faced with rough irregular masonry surmounted by a cone similarly constructed, of which only a small portion now remains. The interior was solid with the exception of a rectangular cavity in the centre which formed the sepulchral chamber. This was lined with horizontal courses of squared stone, which at the sides inclined towards each other in a curve and intersected longitudinally in an internal ridge line. In this feature the sepulchre may be compared with the Egyptian tombs of the XIth dynasty at Abydos, but in its general form it is evidently an elaboration of the primitive tumulus, and is a type of many others of later date and smaller size in the same region.[1]

[1] The tomb of Alyattes is a much larger tumulus near Sardis; its diameter being about 816 feet. There are remains of some stone structure on the summit. See Herodotus, I, xciii, and Rawlinson's note on the passage.



ROCK-HEWN TOMBS AT MAKRI, THE ANCIENT TELMESSOS, IN LYCIA. Hellenic Society. Photo. by F. W. Hasluck.

Whilst these monuments must be regarded as relics of an indigenous population, or of earlier emigrants from Europe, the large figure, miscalled Niobe, cut in the rock on Mount Sipylus, and the figures carved in relief at

MODERN COUNTRY DWELLINGS IN LYCIA
From drawings by Sir C. Fellows.

Karabel, further south, are assumed to be undoubtedly the work of Hittites who had advanced towards the coast some time before 1,200 B.C.[1]

Notwithstanding the absence of any primitive struc-

[1] *Cf.* "Ionia," p. 14, and Garstang, pp. 168-173.

tures which can be ascribed to the Greek immigrants, it is possible to draw some inferences as to the origin of their architecture from monuments which exist in neighbouring countries. The rock-hewn tombs, which are numerous in parts of Lycia, are remarkable for their close imitation of timber construction, and appear to reproduce in stone an indigenous method of building. At the same time they have details in the form of their columns and entablature which have evidently been suggested by the Hellenic architecture of Ionia when it had already assumed its typical form, which probably indicates an actual date not earlier and generally later than the sixth century B.C.

When in the earlier half of the last century, Charles Fellows made two journeys through the western parts of Asia Minor—regions till then almost unknown to European travellers—he noticed the similarity between the timber buildings of the country districts in Lycia, and the fronts of these ancient tombs. The wooden posts which in some cases surround these rustic buildings, the crossties which strengthened the walls, the projecting ends of the horizontal beams and smaller rods which form a bedding for the flat earthen roofs, find their counterparts in the rock architecture, and can reasonably be assumed to perpetuate a method of timber building practised in Western Asia from immemorial times. In some cases the roof is ridged, and gives in front the form of the triangular pediment which became an invariable feature in temple architecture.

There is another form of tomb which seems peculiar to Lycia—a rectangular sarcophagus, the roof of which consists of two curved surfaces meeting in a ridge and showing at the ends the outline of a two-centred arch.

The likeness of this to the *châsse* of a medieval shrine suggests that it is the representation in stone of the coffer in which the body was enclosed,[1] and the imitation, in some, of a wooden framework with projecting ends by which it could be carried to the tomb, tends to prove—if further proof were needed—that the imitation of woodwork in stone was direct and exact, and not a mere decorative motive fortuitously adopted from carpentry.[2] It is true that a row of circular disks which form such a distinct feature in these tombs is used decoratively at a much earlier period, as in the small dove-columns from Knossos (see p. 27) or in the capital of the *stele* above the Lion-Gate

TOMB OF PAYAVA. From a drawing by G. Scharf. (B. Museum.)

[1] M. Choisy's idea that the form originated in an inverted boat, which was afterwards encased in crude brick, seems altogether fanciful. His suggestion that the lion's head and dependent paws which are sculptured on some represent a covering of hide has more probability. See his "Histoire," vol. i, pp. 251-2.

[2] This distinction may seem somewhat fine, but it is called for by the crude theories as to the origin of architectural forms which are sometimes propounded. The clustered lotus-columns of Egypt cannot have been substitutes in stone for actual lotus-stems in a similar position, though the temporary use of such light props i

at Mycenae. In these Lycian monuments their origin is made obvious, and they show, as do the architraves of the Egyptian tombs at Beni-Hasan, how a simple structural feature in timber becomes the origin of a decorative motive in stone.

That these timber rods were replaced at some time or in some cases by rectangular joists is probable, and in that form they were eventually represented by the rows of dentils which occur in the more developed and typical form of the Ionic order. But though both forms occur on the rock façades, it is not to be assumed that they are contemporary evidences of the actual process of transformation. Their dates are obviously too late for that. All that can reasonably be asserted is that some of them reproduce an obsolete phase of an art which had passed its formative stage and was already well developed on the Aegean coast, and illustrate a propensity not uncommon in sepulchral and religious art to adhere to antiquated and imperfect forms.

The Phrygian rock-tombs seem to illustrate the same persistence of an archaic tradition. Some, like the sepulchre of Midas, have the front covered by a geometrical pattern which resembles that of some woven material, and has been supposed to represent the curtained front of a tent-like dwelling. Some, on the other hand, show fronts with columns in antis which are evidently Hellenistic in style and date. The triangular pediment

suitable conditions may have suggested this treatment of the column. Nor do the Doric triglyphs reproduce the ends of similarly placed wooden beams, which would not appear at the same level on both front and sides, though it is likely enough that they were suggested by a primitive decoration incised on timber beam-ends. See *ante*, p. 121, and "Arc. of A. Egypt," pp. 66, 238-240.

which is found even in the most archaic, shows that the design was copied from a building with a timber-framed roof and, like the figures in the tympanum, had probably become conventional before the dawn of Phrygian ascendancy in the eighth century B.C.

The side-lights which are thus thrown on the primitive architecture of the Aegean coast of Asia tend to show that it was largely, if not entirely, based on a timber construction.

ROCK-TOMB AT MAKRI

Hellenic Society. Photo. F. W. Hasluck.

CHAPTER X

THE FORMATION OF THE IONIC STYLE

WHILST the earlier art of Asia Minor must have contributed to the development which took place in Ionia, it seems more than probable that the Minoan culture which grew up in Crete and, in the fifteenth and fourteenth century B.C., had spread over the Aegean area and penetrated into Greece, must have obtained some footing on the Asiatic coast. That it had extended to the Troad is evident from many objects found at Hissarlik, but there is a strange absence of direct evidence in the more southern parts of the Anatolian coast. The references to the buildings and works of art in the Homeric poems, which in their current form are Ionian compositions of the ninth century, do not throw much light on this point, for the traditions on which they appear to be based must be about three centuries older, and were probably brought over by the emigrants. It may be supposed, however, that the culture which the Homeric redactor depicts, and which in his time was to all appearance almost extinguished in Greece, was to some extent maintained by the Greek colonists, weakened though it may have been by Dorian domination, and diluted by the local influences of their new home.[1]

[1] Whatever may be the origin of the name, the historical Ionians must have been a mixed race, including Achaeans and Aeolians as well as migratory tribes from Attica, Boeotia and more northern regions. Mr. Hogarth says, "what the Ionian took to Ionia was a fusion of the Danubian with the Aegean culture." "Ionia" p. 41.

The same complexity appears to be illustrated in their religious system, for if the Dorians, as has been assumed, brought a new ritual cult of Zeus and Hera and presumably other divinities, it is probable that this was taken to Ionia by early emigrants. There it may be supposed to have received some oriental accretions in the shape of various personifications of the great Asiatic and Aegean mother-goddess and her son or consort, the god of the double axe, until the complete Pantheon of Homer's day was evolved.

It was apparently in religious architecture—in the construction of temples and tombs—that the Ionic order grew to completion, but it is evident that in its plan and fundamental form the temple of Ionia, like that of the motherland, was based upon the Mycenaean megaron.

One of the first founded and greatest cities of Ionia was Ephesus, and Mr. Hogarth's exploration of the site of the Artemisium—known to the Christian world as the Temple of Diana of the Ephesians—has been very valuable in throwing light upon the sources of Ionian art. He has shown that before the last temple, which replaced the one burnt in 356 B.C., there had been three successive enlargements of a primitive shrine on the same site. At the lowest level was found a deposit of about 3,000 objects of various kinds—trinkets of precious metals, electrum coins, and votive models in ivory, crystal and commoner materials. Though apparently of local manufacture they indicate foreign influence in the imitation of Egyptian scarabs, late Mycenaean ornaments, Babylonian or Hittite carvings, with traces of a northern art.[1] Their discoverer dates most

[1] As to Hittite influence, see Prof. Lethaby on the Early Artemisium in J. H. S., vol. xxxvii.

of these objects at about the end of the eighth century, though it seems possible that the first constructed temple was not later, and perhaps was earlier than the ninth century. It is only of the third enlargement that enough remains to indicate its plan, which appears to have been a "distyle in antis" possibly with a central colonnade such as occurs at Neandria and seems to have existed in the primitive temple at Sparta.[1]

But whilst the fundamental form of the temple-cella must have been imported with the cult with which it was associated and, in the use of columns in pronaos and peristyle, must have shared with the Doric temple a remote indebtedness to the columnar system of Phaestos and Tiryns, there are unmistakable indications that the structural system of the completed order was developed independently in Ionia, and had a history distinct from that of the motherland. The entablature, as the Lycian tombs show, must, when the material was timber, have been of lighter construction; and so it remained when its original details became conventionalized as decorative features in stone or marble. The columns continued to correspond with this condition both in their slender form and comparatively wider spacing.[2] For whilst in early Dorian work the original wooden column was abandoned for one which had been developed in a rock-hewn architecture, the Ionian column retained in its latest form evidences of a continuous evolution from a timber orig-

[1] See *ante*, p. 63.

[2] The wider spacing was generally only an apparent effect of the slenderness of the columns. Durm (p. 236) shows that the distance between the axes of the columns in the temple at Corinth and the Ionic columns of the Propylaea at Athens was almost identical.

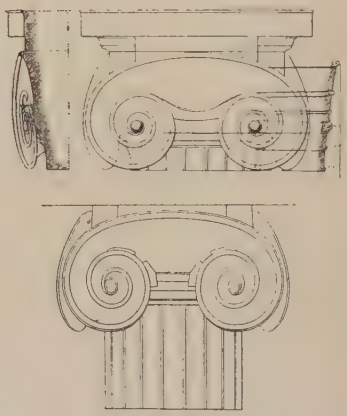
inal. The comparative slenderness of the shaft, the character of the flutings, which are deep and narrow as if cut out with a semicircular gouge, and are separated by a fillet instead of a sharp edge, which could not have been preserved in a wooden shaft, and the retention of the base, are cumulative evidence of the correctness of this assumption.

But it is not so easy to account for what is the most striking, if not structurally the most important characteristic of the Ionic order, that is, the voluted capital. The corresponding feature in the Doric with its circular and expanding echinus capped by a somewhat heavy square abacus, can be traced, in a gradual but logical process of development, from the large spheroidal bole, which intervened between the top of the tree-trunk which formed the earliest column and the squared timber of the primitive architrave. In its fully developed form the Doric column is admirably designed to express strength and weight-bearing power without any appearance of ponderousness. But in the Ionic capital the curve of the lower edge of the channel between the volutes, which appears in the finest examples, expresses anything but strength or sustention of pressure, and when regarded in conjunction with the *pulvinus* at the sides is more suggestive of a roll or scroll of thin metal or of some other yielding material.

This peculiar difference of character, in which the idea of firmness and rigidity is exchanged for that of pliancy and grace, might in itself suggest an oriental origin for the Ionic capital, and this supposition is supported by the fact that the earliest representation of anything like an Ionic column is found in the centre of Asia Minor. It occurs in a Hittite rock-relief in the forest-sanctuary

SHRINE ON HITTITE RELIEF. (Puchstein.)

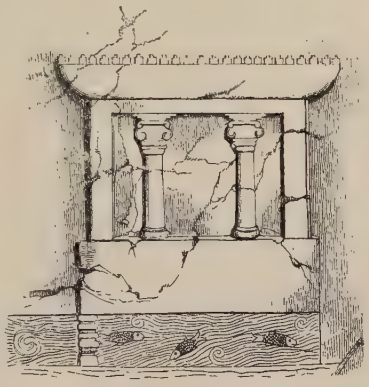
of Iasily Kaya near Boghaz-Keui, and is approximately dated at 1270 B.C. when the Hittites, before the Greek immigration, had extended their domination towards the western coast. The object represented appears to be a model of a small shrine held in the hand of a king. It has two columns supporting a roof which, however, is conventionally represented by a pair of outstretched wings, which recall the winged sun-disk common on Egyptian architraves.[1] The shafts, which are fluted and tapering upwards, are each surmounted by a capital formed by an arch-like cover with a spiral scroll or volute curving inwards and downwards at



TWO DRAWINGS OF THE IONIC CAPITALS AT BASSAE. (Puchstein.)

[1] This design is not a solitary instance of Egyptian influence, direct or indirect, on Hittites art; the sphinx is also found.

each end. Since nothing like it is found in any contemporary stone structure, it must be supposed that pillars or pilasters of this form were used in timber buildings, the capital being perhaps a metal cap curved over the rough end of the trunk to prevent the infiltration of moisture.[1]



SMALL PORTICO ON A RELIEF AT KHORSABAD, *c.* 722-705. (Botta, pl. 114.)

There can be little doubt that this peculiar form of double volute, which has a strongly curved upper line, became a recognized type and continued in use down to the fifth century, and even later, for it occurs in the internal pilasters of the Doric temple of Apollo at Bassae in Peloponnesus and, in a less rounded form, at the Leonideion at Olympia.[2]

That the voluted capital was known in Assyria is shown by a relief from Khorsabad, representing a pavilion with two columns in antis. The date of this must be about 700 B.C. but there is no reason to suppose that it originated there. On the contrary, it may be inferred from an ivory carving in which two of these double volutes are placed *vertically* upon an upright stele, apparently repre-

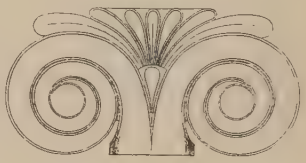
[1] The use of metal for the rim of the canalis at a much later date is suggested by Puchstein, p. 54.

[2] See Olympia, Pl. LXV. It is found in Campania and also in Lycian tombs. See Puchstein (p. 45).

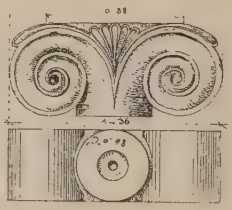
senting the sacred tree which occurs in various forms, that this peculiar design was imitated from a type already established elsewhere.[1]

CAPITAL OF STELE FROM CYPRUS (Durm.)

There is another type of double spiral used as a capital which occurs on early monuments and reliefs. One variety is seen on a small Assyrian ivory panel which is supposed to represent an Egyptian king,[2] and it must be noted that it appears in almost identical form as the capital of a pilaster on a tomb at Tarmossos in Cyprus.[3] It has been conjectured that these designs in which the spirals are not connected by any continuous line, were originally suggested by a pair of goat's horns used as a finial to a wooden support as is also shown on an Assyrian relief.[4] But a somewhat similar though evidently later variety found at Neandria in the Troad, and at Messa in the neighbouring island of Lesbos, suggest a different motive on



CAPITAL FROM NEANDRIA



SIDE VIEW AND PLAN OF CAPITAL FROM MESSA, LESBOS. (Durm.)

[1] See B. M. Cat. of Babylonian Antiquities, p. 25. The position of these voluted members recalls the capitals of the columns at Persepolis, and tends to show that Xerxes' builder was not originally responsible for this inept misuse of an architectural feature, which must obviously have already become conventional in its proper form.

[2] *Ibid*, p. 22. [3] Choisy, p. 257; And. and Sp., pp. 58, 59,

[4] See Lübke, pp. 57, 58.

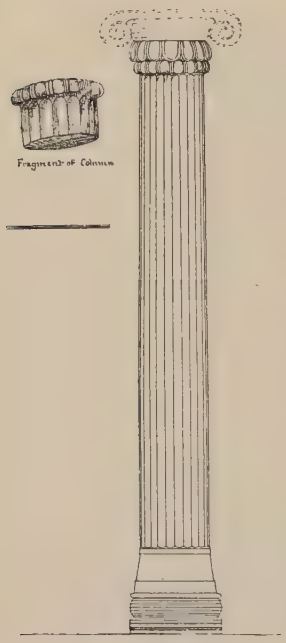
the part of the designer. Here a double stem rising vertically from the top of the column is curled over to either side of the axis, and the graduated lobes which

VOLUTED PILASTER FROM TARMOSSOS

(Anderson and Spiers.)

fill the space between the spirals evidently indicate a floral motive. At Neandria it was found in the remains of a building with a central line of columns which supported the roof, the capitals being placed like T brackets

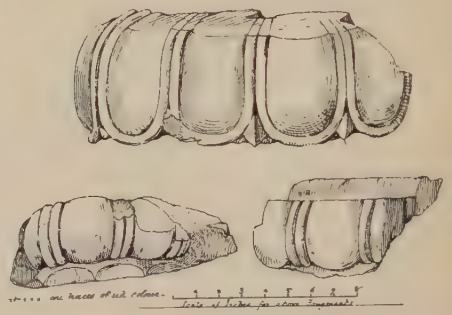
with their length along the axis. The date of this building is placed by Koldewey in the seventh century B.C.[1]



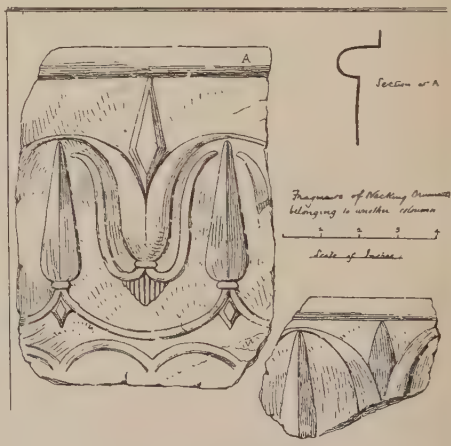
COLUMN RECONSTITUTED FROM FRAGMENTS

From Petrie's "Naucratis." Eg. Exploration Fund. (Drawn by G. Horsley.)

(Though the volutes and the base are now lost, they were both seen by Prof. Petrie.)



FRAGMENTS OF CAPITAL FOUND AT NAUCRATIS (E. E. F.)



NECK ORNAMENT OF ANOTHER COLUMN (E. E. F.)

Whatever the origin of this form may have been, it can

[1] See Winckelmannsfeste-Program, 1891, p. 49.

hardly be the same as that of the Hittite design in which the two volutes are found on a single curved line which cuts the axis of the shaft at right angles; and yet it may well be the case that the use of two large spirals in this form contributed to the elaboration of the typical Ionic capital.

The double volute, however, is not its only characteristic, for in its developed form there is found below it, and incorporated on each side in the substance of the roll or pulvinus, a moulding (cymatium) of the familiar egg and dart pattern corresponding in position with the Doric echinus. But it differs from the latter inasmuch as it seems originally to have formed a separate section, or was sometimes part and parcel of the shaft. An early example of this moulding is found in the mutilated capital discovered by Professor Petrie at Naucratis, which must be of the period of Amasis II (*c.* 600 B.C.) It has the form of a corolla of pendant petals which, unlike the Doric echinus expanded downwards instead of upwards, and is therefore more analogous to the small leaf ornament occasionally found below the echinus[1] than to any member which is intended to bear a weight. For this reason it was necessarily associated with a member having a wider bearing surface, though in this case it has now disappeared, leaving only part of the shaft with this decorated neck. So far as the moulding is concerned its elementary form is shown in a Phoenician capital given by Durm,[2] which however has only a light abacus above it.[3]

PHOENICIAN CAPITAL. (Durm.)

[1] See *ante*, p. 89.

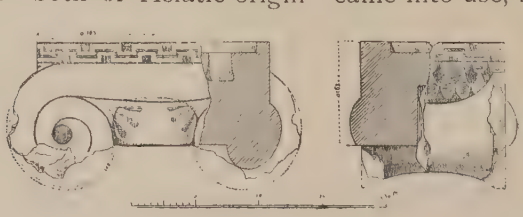
[2] Durm, p. 245. It is probable that it is an adaptation from an early Ionian column.

[3] See p. 157.

RESTORATION OF THE NAXIAN COLUMN
(Fouilles de Delphes IV)

Another archaic Ionian capital is shown in the votive column of the Naxians at Delphi where the two volutes remain, though the connecting *canalis* is lost. In other respects there is a great difference between the two, for the column from Naucratis has a second moulded band below the cymatium. Another column appears to have had a neck-ornament of lotus-flower in low relief —a decoration which in the form of the anthemion reappears in some of the later examples of the style. But in the Naxian column the flutings of the shaft, which are very numerous, run up with a gently expanding curve into the hollow below the pendant lobes.

The foregoing examples indicate that two types of capital—both of Asiatic origin—came into use, namely



EARLY IONIC CAPITAL WITH PAINTED DECORATION—ATHENS
(Puchstein.)

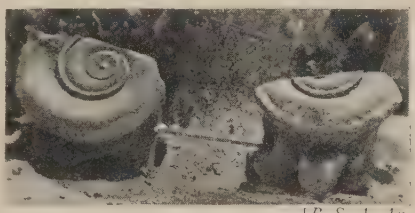
(1) that in which Iktinos used in the temple of Apollo at Bassae, in which the voluted member was short and concentrated, and was placed immediately upon the shaft

without the intervention of another member below the abacus, and (2) that in which the shaft was crowned by a cymatium above which a more expanded pair of volutes with a thin abacus was placed as an intermediary between the head of the shaft and the entablature.

[*B. S. A. An.*

VOLUTED RELIEF FROM CYZICUS

That the Athenian architects, who ultimately brought the Ionic capital to perfection, began by attempting to adapt the Ionian volutes to the Doric echinus may be inferred from some early capitals amongst the pre-Persian fragments found on the Acropolis. In these, the member representing the cymatium is a plain torus or rounded moulding entirely devoid of carving, but decorated with coloured ornament. The egg and dart as a sculptured moulding is not found at Athens till after the Persian invasion; and Puchstein (p. 46) remarks that it is very rare till after the time of Mnesicles (437 B.C.). He omits, however, to notice that it appears in the drawing of the temple on the Ilissus (450 B.C., see p. 154) now destroyed, and it is evident that it was used as a painted decoration at a much earlier period.



[*B. S. A. An.*

FRAGMENTS OF CAPITAL FROM CYZICUS

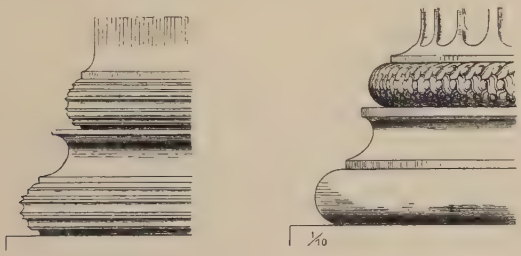
That it was used in Ionia early in the sixth century B.C., is evident from the capitals of the earlier Artemisium at Ephesus, a mutilated specimen of which has been reconstituted in the British Museum. Similar fragments have been found at Cyzicus.[1] The primitive forms of the neck-moulding have already been noticed, and by 560 B.C., when the earlier Artemisium was built, it will be seen that not only had the cymatium acquired its typical

RECONSTRUCTED CAPITAL FROM THE ARCHAIC TEMPLE OF ARTEMIS, EPHESUS. (Br. Museum.)

form, but also that the angles between it and the volutes are filled with an early form of palmette ornament; but both these and the volutes are archaic in style and wanting in the refinement which they acquired at Athens in the following century. Whilst the Ionian origin of the order, therefore, is incontestable, existing evidence seems to show that the capital acquired its finished and most refined form at the hands of Athenian architects.

[1] See a paper on Cyzicus, by F. W. Hasluck, "B. S. A.," vol. viii.

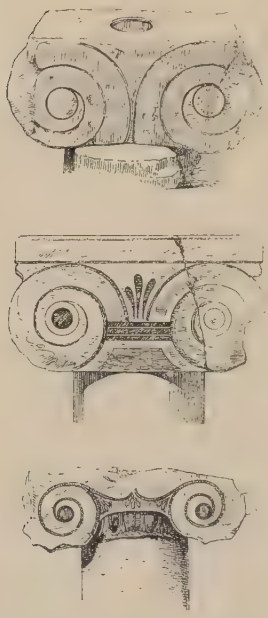
The base also underwent a similar process of refinement. The form used in the earlier Artemisium suggests an original derivation from a heavy spheroidal pedestal of wood, the surface of which was relieved by horizontal channellings analogous to the vertical grooves which are assumed to have decorated the wooden shaft. Beneath this there must have been a stone slab, or a block of some thickness. In the more developed form in which complete stone columns are first found, the base consists of a large



Anta Column

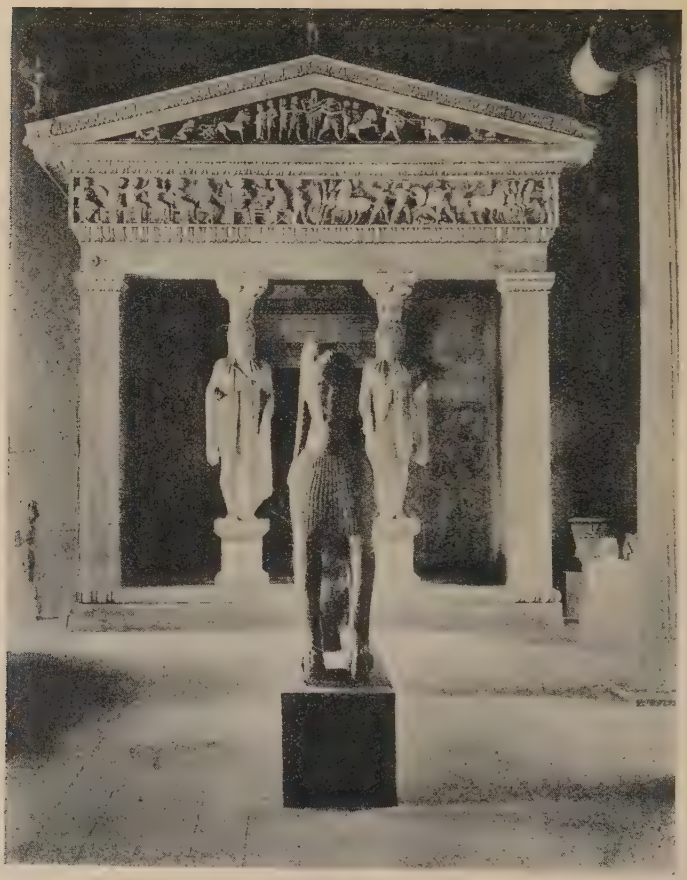
PERFECTED IONIC BASES FROM THE NORTH PORTICO OF THE ERECHTHEION. (Lübke.)

torus on a circular plinth, both of which have the horizontal grooves sometimes alternated with larger hollows —a form which is found at Priene in Caria late in the fourth century B.C. But when the Athenian architects adopted and developed the order they reduced the size of the base, and limited the members to an upper and lower torus separated by a hollow or scotia, and so formed the type which is known as the Attic base. The upper torus retained the horizontal grooves for which a plait-moulding was sometimes substituted, whilst the larger torus below was often left plain. Examples of both forms occur in the Erechtheion and Propylaea.



EARLY VARIETIES OF THE VOLUTE, FROM ATHENS. (Durm.)

The voluted capital seems to have been used first in Athens for votive stelae, various forms occurring amongst the pre-Persian fragments. The more archaic seem to be blocks incised or carved after the type found at Neandria, whilst others show something like the Doric echinus or cyma, coloured with an imitation of the egg and dart moulding, above which, on the same block, was a shallow carved double volute connected by a canalis similar to the type of the earlier Artemisium. It seems clear from these examples that both types of Ionian capitals became known at Athens early in the fifth century if not sooner, though it was only the later one used at Ephesus that became the typical form.



THE TREASURY OF THE CNIDIANS, OR SIPHNIANS, AS RECONSTRUCTED IN THE MUSEUM AT DELPHI

On the right is a cast of the Column of the Naxians on which the Sphinx in the foreground stood. (See p. 146.)

THE ERECHTHEION FROM THE EAST

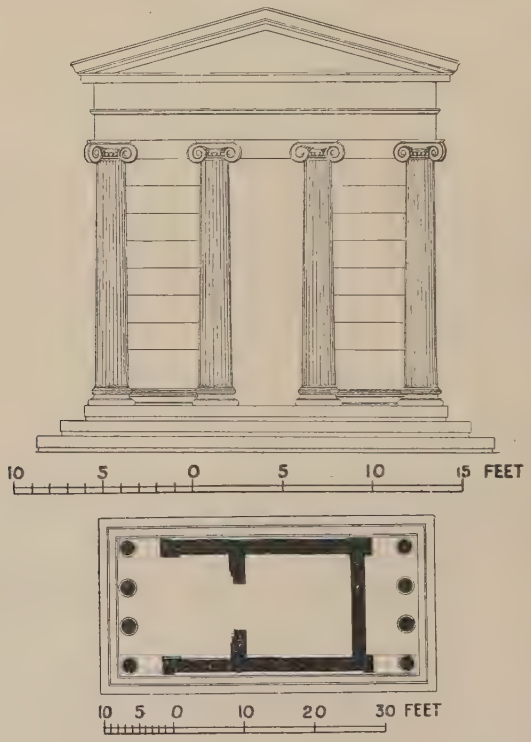
CHAPTER XI

DEVELOPED IONIC

AS soon as the Athenians had reduced the Ionic capital to a regular architectural form when colour had become subordinate to carved decoration, it is probable, though this can only be an assumption, that it was used in many cases for the two columns in antis which formed the entrance to the cella of the Doric temple. This assumption is supported by the fact that the first recorded complete Athenian building in the Ionic style was the small temple on the Ilissus which was an amphitetrastyle—that is, a simple cella with four Ionic columns at each end. Its date is supposed to be 450 B.C.; and though it has now completely disappeared

it was measured and drawn by Stuart and Revett in the middle of the eighteenth century.

A further development is shown in the somewhat



ELEVATION AND PLAN OF THE IONIC TEMPLE ON THE ILISSUS
(Anderson and Spiers.)

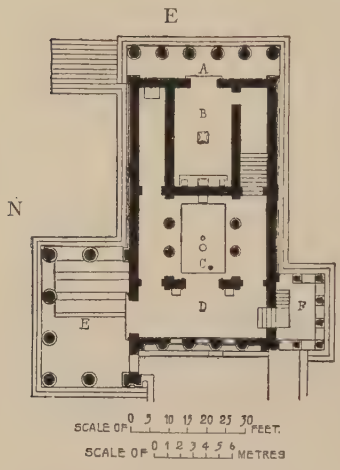
similar temple of Nike Apteros on the Acropolis (435 B.C.), which after its partial demolition was fortunately found to be capable of reconstruction with the

original stones. Here there are four Ionic columns in prostyle at each end, and in addition two in antis at the entrance of the cella. It stands on a podium on which part of an interesting sculptured frieze still remains. Simultaneously with the building of this temple and almost contiguous with it, Mnesicles was erecting the Propylaea (437-435), and though the external order

TEMPLE OF NIKE APTEROS FROM THE NORTH-EAST. (Statham.)

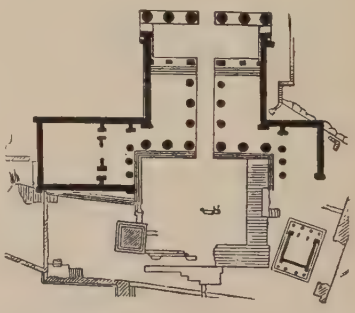
was Doric he adopted Ionic columns for the two internal ranges of three columns which divide the central passage from the side walks. In the form and proportions of these he is generally regarded as having brought the Attic type to perfection.

But in truth the typical form of Greek Ionic was never so strictly defined nor so simple in character as the Doric. Its adoption and rapid evolution in Athens was no doubt due to the additional scope which it gave to the imagina-



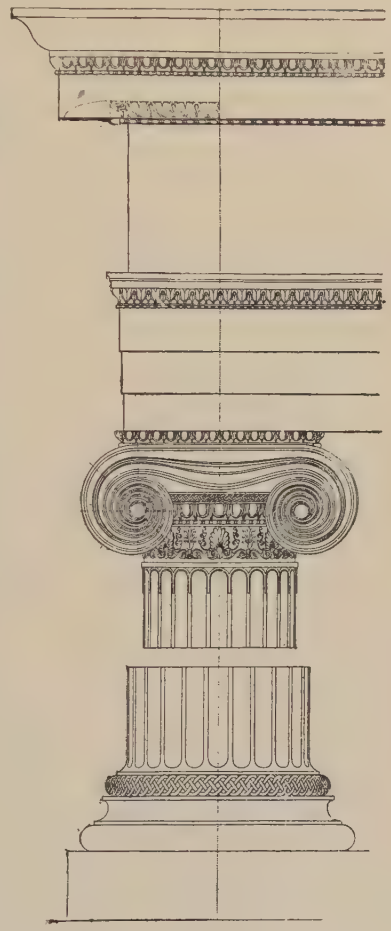
PLAN OF THE ERECHTHEION
(Statham.)

was influenced by some special tradition. Since it was not completed till nearly the end of the fifth century, it is possible that it represents the work of more than one architect. The principal portion, which is generally regarded as a temple of Athene Polias, was probably the first to be rebuilt. It has a hexastyle portico facing the east on the higher tion of the architect and the superior richness which he was enabled to give to his work. This is shown in the Erechtheion, a building which comprises three ancient shrines destroyed by the Persians, the reconstruction of which was begun almost immediately after the erection of the Propylaea. This composite character and the fact that its site is on different levels may account for the singularity of its plan, but it has other peculiarities which suggest that its designer



PLAN OF THE PROPYLAEA AT ATHENS, AND THE SMALL TEMPLE OF NIKE APTEROS

part of the site. The capitals differ from those of the earlier buildings in having a central seam or thread which runs through the canalis, and gradually dies into the spiral lines of the volutes. They are enriched also by an elegant band or necking of carved anthemion pattern at the top of the shaft immediately below the cymatium. The bases of both of the columns and the pilasters at the ends of the cella walls are lightened by a horizontal channelling.



ORDER OF THE ERECHTHEION, NORTH PORTICO. (Statham.)

On the north side, where the ground is about 10 feet lower, there is another portico. This is a tetrastyle with an additional column on the return at each end. It must have formed the entrance to another shrine, presumed to be that of Erechtheus, which was probably separated from the eastern *naos* by a cross wall or colonnade erected on the scarped side

of the higher platform. The order is similar to that at the eastern end, but the neck moulding of the columns is slightly different, and the base has the upper torus carved with a plait design. Though the height of the columns in relation to their diameter is slightly less, which by itself might indicate a somewhat earlier date, the details of the whole structure lead to a contrary conclusion. This is evident particularly in the doorway of the cella, which is one of the most admired surviving specimens of Greek Ionic art. The converging sides with rosettes upon the surrounding architrave have a striking resemblance to an old Mycenaean doorway (see p. 54), and the projecting lintel is richly ornamented with a band of anthemions above an egg and dart moulding harmonizing with the decoration of the columns. The lintel is supported by two consoles which appear to be the earliest examples of the modillion which is a characteristic detail of the later Corinthian style.[1] It may be supposed that this doorway belongs to the latest portion of the work.

NORTH DOORWAY, ERECHTHEION. (Lübke.)

The most striking and generally admired feature of the Erechtheion is the small gallery or tribune on the south side, the entablature of which is supported by six female figures generally known as Caryatides. As works

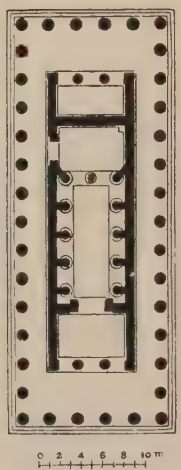
[1] The similarity of the form of these consoles to a Cretan ornament of uncertain use has been noticed in an earlier chapter. See *ante*, p. 28.

of art they illustrate the excellence to which architectural sculpture had attained during the half century which followed the expulsion of the Persians, but the propriety of their use as supports may seem doubtful, as it probably did to the Greeks themselves, who seldom, if ever, imitated them.[1] They were, however, no new invention but rather the final form of a motive which originated in Egyptian architecture a thousand years earlier. It is exemplified in the Osirid figures of Karnak and the Ramesseum, and assumed a barbaric exuberance in the rock-hewn temples of Abu Simbel.[2] These figures are at first used as ornamental accessories to pillars and not as actual supports. But in the seventh century B.C., they are found in an Ethiopian temple at Napata, where grotesque figures of the god Bes appear to sustain the stone beams cut in the superincumbent rock.[3] From the original use of sculptured figures as merely ornamental additions to supports were derived in later times the statues known as the Incantadas formerly at Salonika, and that of an Amazon on a pilaster in the National Museum at Athens.[4] In the guise of actual supports they were found in Grecian art in the figures which give a name to the Stoa of Giants at Athens, and in the immense telemones of the temple of Zeus at Agrigentum. But the figures on the Acropolis find their more immediate forerunners at Delphi, where similar statues served as supports in antis to the front of the Treasury of Cnidos (or Siphnos[5]). These, though somewhat more archaic and oriental in style, have something of the grace of the Caryatides of the Athenian

[1] They were occasionally adopted by Michelangelo, J. Goujon, and Inigo Jones, and were imitated by Inwood in St. Pancras' church, London. [2] See "Arch. of Anc. Egypt," pp. 148-152.

[3] *Ibid.*, p. 165. [4] See Durm, p. 259. [5] See B. C. H., xx.

Acropolis. In the Erechtheion the anomaly of using such figures as columns is relieved by the comparative lightness of the entablature in which the frieze is represented merely by a row of dentils which are so characteristic of Ionian art though they are absent in the most typical examples of the Attic form of Ionic. It is also noticeable that only a cymatium with the egg and dart moulding and a plain square abacus intervene between the head and the entablature, for it is obvious that the precise and formal spirals of the voluted member would ill accord with the naturalistic grace of the figures. These various details seem to prove that the work was but slightly influenced by the severer school of which Mnesicles may be regarded as the exponent.



PLAN OF THE TEMPLE AT BASSAE

That the Greek architects regarded the style as a field for experiment may be inferred from the interior work of the temple of Apollo Epicurius at Bassae near Phigáleia.[1] It is ascribed to Iktinos the architect of the Parthenon, and was built, or rebuilt, about 430 B.C. It is therefore contemporary with the Erechtheion. Externally it was a fine example of a Doric hexastyle[2] with fifteen lateral columns, and was thus unusually long in proportion to its width. In other respects it has peculiarities of plan, for the entrance to the main cella faces north,

[1] Pausanias, VIII, xli. [2] See *ante*, p. 107.

and towards the further end there was a side-door on the east side. This has led to the conjecture that the site includes that of an earlier aediculum which is represented by the space between the main part of the cella and the opisthodomos. This space became the sanctuary of the larger temple, in which it is supposed that an ancient statue of the god was retained in its original position with its face to the east.[1] The larger cella, which formed an approach to the sanctuary, was flanked on each side by a row of five pilasters of a peculiar variety of the Ionic style which covered the ends of short cross-walls connecting them with the sides of the cella. Round the interior walls above the pilasters ran a marble frieze depicting in relief Amazons, Centaurs, and Lepithaes. In vigour of delineation it resembles the Panathenaic frieze of the Parthenon, though inferior in technical qualities.[2]

The partition of the sides by cross-walls recalls the original arrangement of the Heraion at Olympia,[3] but the two at the south end, instead of being perpendicular to the sides of the cella, are placed askew so as to give to the sanctuary a semi-octagonal plan.

Amongst the debris on the site was found a single mutilated capital with Corinthianesque foliage, which if it was contemporaneous with the building must be one of the earliest examples of that form.[4] It is generally supposed to have belonged to a column which stood between the

[1] Pausanias (VIII, xxx) speaks of a fine brazen statue of Apollo Epicurius at Megalopolis which had been brought from Bassae, but there is no reason to suppose that it was older than the fifth century temple.

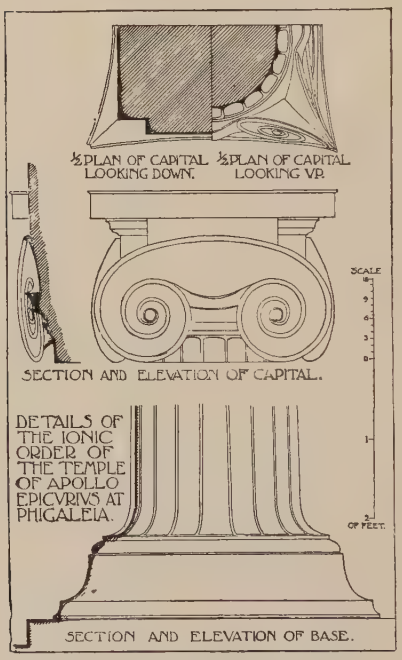
[2] Nearly the whole of this frieze is in the British Museum.

[3] See *ante*, p. 68.

[4] See *post*, p. 170.

last two pilasters, but it may have been the head of a votive stele.

The capitals of the pilasters show a remarkable divergence from the Attic type of Ionic. There is no equivalent for the egg and dart cymatium, and the voluted head, which rests directly upon the top of the shaft, is short and condensed so that the eye of each spiral falls within the width of the shaft, and the outer curve projects very little beyond it. The volutes thus assume the early form indicated in the Hittite relief already mentioned.[1] The bases also are peculiar, for the fluted shafts are made to curve outwards at the foot, and rest on a torus of considerably larger diameter. This torus is supported on a circular plinth, which again expands so that the lower diameter is nearly twice that of the shaft. The whole pilaster is in oriental taste, and the contrast between this fanciful

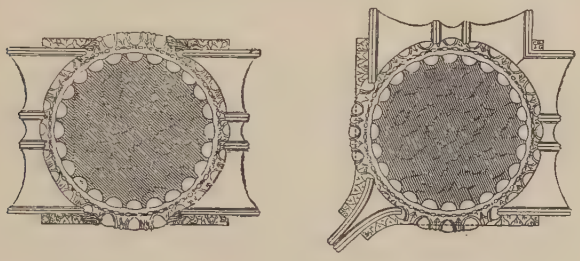

½PLAN OF CAPITAL LOOKING DOWN.
½PLAN OF CAPITAL LOOKING UP.
SECTION AND ELEVATION OF CAPITAL.
DETAILS OF THE IONIC ORDER OF THE TEMPLE OF APOLLO EPICVRIVS AT PHIGALEIA.
SCALE
OF FEET.
SECTION AND ELEVATION OF BASE.

From Simpson's "Architecture," vol. i.

[1] See *ante*, p. 140.

design and the formality of the native Doric of the peristyle, indicates a deliberate experiment in architectural innovation on the part of the architect.

The peculiar form of the capital may be due to a wish on the part of the designer to make all three sides of the pilaster uniform, for the shortness of the voluted member enabled him, by giving a slight concavity to the face, to dispense with the pulvinus or barrel at the sides. The difference between the front and sides of the more normal Ionic capital presented an obvious difficulty when the



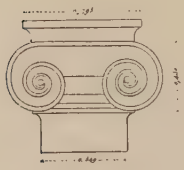
Regular Capital Angle Capital

PLANS OF THE IONIC CAPITAL. (Lübke.)

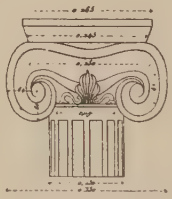
order was used for an external peristyle, for the corner columns would not harmonize with both the front and lateral ranges if a general uniformity in appearance was required. This difficulty was only evaded by placing volutes on the two adjacent outer sides of the corner capitals. But in the case of the Attic form, in which the spirals project considerably beyond the shaft, this entailed a pronounced curvature of the faces of the two spirals which meet at the angle, whilst the surfaces of the others remained plane—an expedient which is universally regarded as unsatisfactory, inasmuch as it spoils

the symmetry of each face. The two inner sides of the capital were occupied by the barrels represented by the flat volutes, but these also met awkwardly at the inner angle of the capital, where the ends bisect each other and show only a half volute of each.

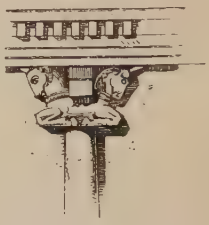
The date at which this expedient came into use cannot be ascertained. In the imitative Lycian tomb-architecture the columns are limited to a single row, generally in antis, for which position the form of the capital was evidently designed. But when the earlier Artemisium at Ephesus was built, possibly as the first peripteral in this style, the



Telmessos (Puchstein.)



Antiphellus



From a Persian Rock-Tomb. (Durm.)

difficulty must have presented itself and was probably met in the way indicated. That it was an established convention when the order was adopted at Athens, appears from the fact that it occurs in the little temple of Nike Apteros, and, according to Stuart, in that on the Ilissus, both of which have only single rows of columns involving no necessity for uniformity in the adjacent faces of the corner capitals. The type adopted by Iktinos at Bassae, was not a solitary experiment, for similar capitals with volutes on all the four sides have been found in a stoa at Calauria.[1]

[1] In excavations by Wide and Kjellburg. See "Ath. Mitth.," vol. xx (1895).

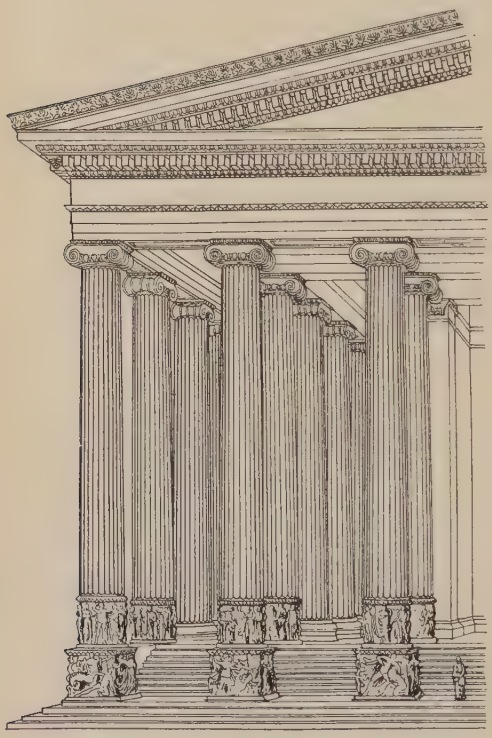
That the order was used with great freedom in Ionia, and never had anything like the precision which characterized the Doric style, is abundantly evident not only in the variation in the size of the volutes and their connecting canalis, but also in the diverse and fanciful methods of decorating the capital which were adopted at a comparatively early date. A peculiar distortion of the voluted member is shown in a rock-cut tomb at Antiphellus in Lycia. There is a curious form of capital found at Ephesus in which a bull's head projects from the pulvinus at each side, suggesting the influence of some Assyrian type.[1] It is probably older than those which give a name to the corridor of Bulls at Delos. Here two piers at the entrance of the sanctuary consist of rectangular pillars, on the inner side of which are Doric half-columns with the usual echinus as capital. But the other sides have no pilaster, but in place of a capital the forepart of a kneeling bull which has a strong resemblance in attitude to the type which is found in the well-known columns of Xerxes' hall at Persepolis, and elsewhere in Persia.

In the fourth century both capitals and bases show a remarkable elaboration of mouldings, as at Priene and Miletus, but these are more allied to the later development of architecture which took place under Roman domination.

The tendency to use sculpture in relief, which is illustrated in the quasi-Doric temple at Assos, is characteristic of Asiatic art. It is shown in the architectural work of the Hittites and Assyrians, and in their later imitators in Persia, but whether it was originally derived from the Egyptians or from some still obscure Asiatic art

[1] A mutilated example may be seen in the Mausoleum gallery at the British Museum.

must be regarded as an open question. The front columns of the great Ionic temple of Artemis at Ephesus are a remarkable and apparently unique example of this use of sculpture in high relief. The temple, which was dipteral, stood on a high platform, and was approached at the east end by a flight of steps which extended across the whole front and was covered by the outer peristyle. In order to raise the bases of the front columns to the height of the stylobate, each column stood upon a rectangular podium, the sides of which, as well as the lowermost drum, were carved with figure-subjects. That this was also the case with the earlier sixth century temple is apparent from a few remains of sculptured drums which were brought to England by their discoverer, J. T. Wood, and are now in the British Museum.



ATTEMPTED RESTORATION OF THE SOUTH-EAST ANGLE OF THE LAST ARTEMISIUM AT EPHESUS. (Br. Museum.)

This predilection for sculpture in relief had no doubt an influence on the severer Doric art of Greece, which becomes especially evident at its culmination in the fifth century; and just as the perfect sculpture on the pediments of the Parthenon owes its remote origin to the religious symbolism illustrated on the Phrygian tombs, so it may be inferred that the friezes of the Parthenon, the Theseion, and of Bassae, descend ultimately from the mural decorations of Egypt or Asia Minor, and have a distant kinship to those of the Assyrian and Persian palaces. This form of art may be said to have culminated three centuries later in the grand sculptured podium of the altar of Zeus erected by Eumenes II at Pergamon between 191 and 152 B.C.; but this belongs to a phase of architectural development beyond the scope of the present enquiry.

THE CHORAGIC MONUMENT OF LYSICRATES

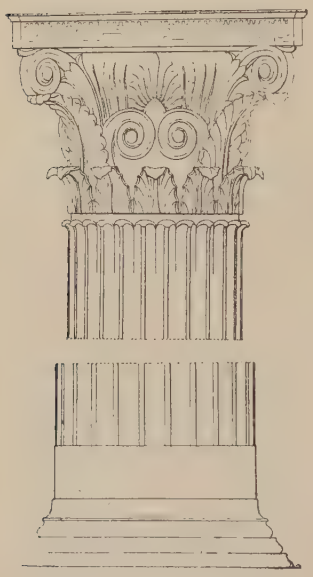
CHAPTER XII

THE CORINTHIAN ORDER

THE rapid development in artistic expression which produced the unsurpassed sculpture of the fifth century was evident also in increased inventiveness and facility in minor architectural decoration. The fact that the Ionic order gave more scope to the artist than the rigid conventions of the native architecture is sufficient to explain its use in the Erechtheion so soon after the building of the Parthenon. The same considerations account for the variations already referred to in the elaboration of the order in Ionia. But it was soon found that a formal adherence to the conventional volutes of the capital did not satisfy the decorative instincts of architectural designers. This fact, and probably also the want of a capital which would be available in any position without the sacrifice of symmetry, led to experiments resulting in the evolution of the Corinthian capital.

In this also, as in the case of Doric, may be traced the remote influence of Egypt, where bell-shaped capitals based on a conventionalized adaptation of the lotus-flower came into frequent use in the fourteenth and fifteenth centuries. But the influence extended to little more than suggestion, for the overflowing fancy of the Greek race, like that of their Aegean forerunners, was not to be satisfied with the stereotyped and unprogressive art of the Theban builders and their later imitators.

The well-known story which attributes the "invention" of the capital to Callimachos of Corinth has nothing to support it. The capital found at Bassae, which seems to be the earliest specimen known, may have been designed by Iktinos, or by some later artist, but neither he nor any one else can be supposed to have consciously invented a new order. In its decoration the spiral volutes are retained, but they are ingeniously connected in pairs with four curved stems which adhere to a plain bell with some resemblance to the Egyptian prototype, and are made to support the four angles of a square abacus.[1]



EARLY CORINTHIAN CAPITAL
From Bassae.
(Anderson and Spiers.)

The egg and dart Ionic cymatium is replaced by a continuous corolla of acanthus leaves, a motive which was rapidly developed with great beauty, and constantly recurs in all later phases of architectural decoration. The capital is thus a compound of elements which are found both in the Egyptian and Neandrian types, with a floral addition which is character-

[1] Prof. Bury ("Hist. of Greece," 1913, p. 152) notes the intercourse existing between Corinth and Egypt in the time of Periander, *c.* 600 B.C.; and it is not improbable that a type of foliated capital was derived from Egypt through Corinth.

istically Greek. A more developed form of the same design has been found in the circular shrine in the Hieron of Epidaurus,[1] and another still remains in situ in the choragic monument of Lysicrates at Athens.

Another early type of bell-shaped capital, specimens of which were found in the Theatre of Dionysus (*c.* 340 B.C.) at Athens, may also be traced in its crude form to an

EARLY CORINTHIAN CAPITAL FROM EPIDAURUS
(Hellenic Society.)

Egyptian prototype. In these the spiral is entirely dispensed with, and above the acanthus corolla the bell is clad with lanceolate leaves which curve outwards at the tips, beneath the square abacus. The same type was used much later in the porch, now destroyed, of the Tower of the Winds (*c.* 80 B.C.) but this variety was

[1] Ascribed to the younger Polycletos who lived in the earlier half of the fourth century. See Durm, p. 287 *n.*

not destined to further development in classical architecture; and the peculiar capacity of the acanthus-leaf for artistic treatment led to its almost exclusive use in the Corinthian capital.

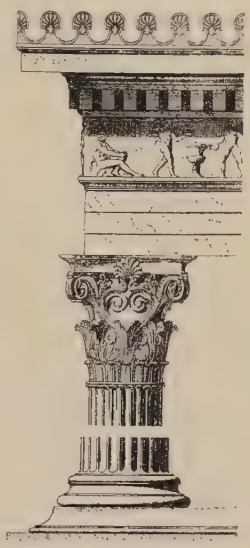
The Corinthian form of column seems at first to have been used chiefly for interior work, and in the circular shrines or memorials which were erected in the fourth century it was so employed, though both the tholos in the Marmaria at Delphi and that at Epidaurus had a Doric peristyle externally. That at Olympia, erected by Philip II of Macedon after the battle of Cheronaea (338 B.C.), had an Ionic peristyle, but here the circular cella, which was plain outside, had its interior surface relieved by pilasters in the Corinthian style. The capitals had two rows of acanthus leaves, and two caulicoli beneath each angle of the abacus, but none on the face of the bell, the upper part of which was merely covered with smaller and less serrated leaves.[1]

CAPITAL FROM THE TOWER OF THE WINDS. (Lübke.)

In Greece these early forms cannot be regarded as constituting a new order. They were merely variations of the Ionic. This is evident in the Lysicrates' monument,

[1] See "Baudenkm. v. Olympia," Pl. LXXXI.

which, though the capitals are of the type of that at Bassae with the addition of a lower corolla of striated leaves—has the regular Ionic entablature, viz., an architrave in three planes, a frieze with sculptured reliefs and a projecting cornice with dentils. The columns have a widely spreading base, similar to that of Ionic pilasters at Bassae, and the only peculiarity about the shafts is that the flutings are made to terminate in a slight leaf-like projection at the top. These six columns are often described as if they were pilasters or semi-columns engaged in the cylindrical wall, but they are in fact actual columns embedded in the wall.[1]



ORDER OF LYSICRATES' MONUMENT. (Lübke.)

So far as Greece was concerned this so-called Corinthian style remained undeveloped until the country fell under Roman domination. But towards the end of the fourth century B.C. under Macedonian influence it was more freely used in Ionia, though the only important remains of a temple built entirely in this style are those of the temple of Zeus at Labranda in Caria. In still later days both the capital and the entablature were elaborated with novel details, such as a frieze with a convex or recurved section, and with richly carved modillions or

[1] The construction is very clearly illustrated by Stuart. The parts of the shafts hidden in the walls were not fluted, and in the interior the capitals are only blocked out. S. and R., Pl. XIII.

consoles in place of dentils, which distinguish it as a separate order.

Its luxuriant character appealed strongly to the Roman taste, and when the great temple of Jupiter Olympius at Athens was built by a Roman architect on the site of an earlier temple of Zeus, the Corinthian order was adopted instead of the Doric of the old building. The new work was begun in 174 B.C. and remained still unfinished in the days of Augustus when it was resumed, but was not completed until 117 A.D. under Hadrian. The capitals are of the type found at Epidaurus, and their design probably dates from the first Roman work, for by the time of Hadrian or even Augustus, the Corinthian capital had departed widely from the earlier Greek forms. By this time architecture had entered on a new phase of development and must be regarded as Roman, rather than Hellenic art.

CHAPTER XIII

SUMMARY

AN attempt to trace the history of architecture between the two great periods which are represented by the surviving monuments of Egypt and Hellas is necessarily, as the preceding pages have shown, a difficult undertaking involved in an obscurity which can never be altogether penetrated. There was a time when the glories of Greek architecure were regarded as a spontaneous emanation of racial genius, influenced only slightly by Asiatic art, and practically independent of that of Egypt. But for anyone who recognizes that all human culture is built up step by step, that it is as surely a process of evolution as that to which the origin of species in organic life is attributed, there is no room for doubt that there must have been phases or fashions of architecture antecedent to that which we know, which if they had survived would show the gradual process of development, and explain how the remains of an outworn art germinated, in a renewed soil, into a more vigorous growth and rapidly attained a more splendid efflorescence.

It is true that the excavation of Assyrian palaces brought to light a civilization intermediate in time to those of Egypt and Greece, and so far as architecture is concerned give evidence of affinities to both; but wide differences in race, religion and local conditions, reflected

in the culture of each, stamp Assyrian architecture with peculiarities which set it apart from the main line of development and show, in fact, that whatever its sources and connexions may be it had but a casual and inconsiderable influence on that of Greece.

The art of western Asia has, no doubt, an interest of its own, but it still awaits further archaeological investigation; and until Asia Minor and Mesopotamia have been more thoroughly explored it is impossible to say with confidence what the mutual or dependent relations of Chaldaean, Hittite, Babylonian, Assyrian and Persian art may be.

The dark age in Greece seemed but dubiously illuminated by the Homeric poems; and the architecture there depicted, dealing as it does with palaces, and ignoring temples, gave little help to archaeologists who knew of no palaces, but were intent on explaining the Parthenon. The picture of the palace of Alcinous with its brazen doorways, silver columns and cerulean friezes seemed to be a creation of pure fantasy, a dream of a poetic Utopia rather than a legend based on anything that had ever existed. But Schliemann's discoveries suddenly threw a beam like a search-light on the subject, and his work, supplemented by that of Dr. Dörpfeld and others, has shown that the Homeric descriptions are but slightly coloured reproductions of a bygone civilization, some vestiges of which must have lingered even to the date at which the poems received their literary and connected form.

Still more was the remoter darkness dissipated when the discoveries in Crete—the credit of which must in the first place be ascribed to Sir Arthur Evans—showed the actual source of much of this Achaean or Mycenaean culture, and traced from its origin in neolithic times a new phase

of art which was destined to have a permanent influence on the general tradition of European architecture.

The parent stem of this tradition appears to have had its roots in Asia and Egypt and to have been transplanted to Europe by means of Aegean or Minoan art where it received some modification from more northern influences.

Yet it seems impossible to avoid the conclusion that a later and secondary influence was exerted by the ancient and all-pervading culture of Egypt even at a time when its architecture had lost its original character and first vitality; and that when Greek builders began to give greater permanence to the habitations of their gods they modelled their stone column-shafts on those of the earlier Pharaohs.

It must be admitted that much doubt as to the ultimate sources of the Minoan civilization still remains, and the very different theories that have been put forward by well-known archaeologists have not tended to dissipate it. To deal with these is far beyond the limits assigned to the present volume, yet if what is known of the religion of the Cretans has any bearing on the question it seems to indicate that the island was first populated by an Asiatic race, and to agree with the geographic conditions which point to Caria as the nearest and most probable place of emigration.

The marked differences in religious cult between the Egyptian and Aegean races (setting aside the supposed indications of the well-known painted stone coffer of Hagia Triada, which must be of comparatively late date[1])

[1] See description and illustrations in Hall's "Aeg. Arch.," pp. 172-176. A copy of this sarcophagus may be seen in the Ashmolean Museum.

is reflected in their architectural systems. The eschatological idealism of the Egyptians led them to strive for the utmost perpetuity in the temples of their gods and the sepulchres of their deified kings. Their secular buildings, whether royal residences or private dwellings, seem, with few exceptions, to have been regarded as temporary habitations adapted for a transitory phase of existence; and being built of comparatively light materials have left but few traces.

In Crete a mixed kind of construction came into use. The generally uneven nature of the terrain necessitated excavations and substantial substructures which are rarely found in Egypt, but the upper works of the domestic buildings were like those of the Egyptians mostly constructed of rubble and timber overlaid with plaster; and as there were no definite fortifications, and no temples set apart for worship, the architectural remains are chiefly foundations and footings which indicate with considerable exactitude the ground-plans of palaces and towns. But the forms of the façades and roofs can only be conjectured from a few frescoes and pictorial tiles, and the main architectural features (apart from internal decorations of which such remarkable examples have been found) consist in the broad flights of steps, in the complex arrangement of the ground-plans and in the gradual development of a columnar system which, like some of the decorative art, shows unmistakable signs of Egyptian influence.

That Minoan and Mycenaean art was widely diffused on the continent of Europe has been proved by archaeological investigation, but so far as the art of architecture is concerned it received certain modifications from the customs and requirements of the more military races who

already possessed the land. The civilization that resulted is that which was called Mycenaean; but though its focus appears to have been in Argolis it was far from being limited to Peloponnesus, and in the tenth century had extended itself to northern Greece and to many outlying settlements on both the east and west. It was this civilization that the irruption of Dorian tribes temporarily submerged, and in the long run, by the introduction of new influences, materially transformed. It is not necessary to assume that these northern invaders were a barbarous horde who destroyed for destruction's sake. On the contrary, they appear to have brought with them some culture of their own, and a new form of worship which was ultimately adopted by the whole of Greece: and it may be assumed that as soon as they had established their supremacy in Peloponnesus they assimilated to some extent the arts of their subjects, and adapted the existing architecture to the requirements of their own religious cult. The archaeological grounds for this theory have been given in the foregoing pages, and the process suggested; and though much must be regarded as conjectural, there appears at present to be no more probable explanation of the origin of Doric architecture and its culmination in the work of the great Athenian artists of the fifth century.

The sources of the Ionic order are in some respects more obvious, in others more difficult to discriminate. That it was originally based upon a construction mainly, if not entirely, of timber is generally taken for granted, and so far as its columnar form is concerned it may be supposed to have a common origin with the Doric. But the peculiar voluted form of the capital is apparently due to some tradition which prevailed in western Asia

long before the Ionic immigration, though the typical form which became classical must have been perfected by Athenian architects. A similar process is illustrated in the evolution of Greek sculpture which, based originally on the conventional art of Egypt, became imbued with characteristics which are more distinctly Asiatic, until it finally attained the naturalistic perfection of the school of Pheidias and his successors.

Yet Ionian builders and artists remained eminent in architectural achievement, and notwithstanding the perfection attained by the art of the motherland in its self-imposed limits, it was chiefly through Ionia that the architectural tradition retained its vitality. The tendency to luxuriance generally characteristic of oriental races brought its influence to bear in Asiatic Greece, and its artists refused to be restrained by the austerity of pure Hellenism. Under the Macedonians the use of the Corinthian capital, with greater freedom in the decoration and composition of the entablature, resulted in the formation of a new order rich in ornament and untrammelled by any formal canon. This Hellenistic art captivated the Roman conquerors and appealed to the love of ostentation which grew up under the Empire; and ultimately, reinforced in its decay by new influences from the east, and by new vigour from the north and west, led to the romantic glories of Gothic Art.

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